### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 10.04.95 Test oil : ISO 4113

Combination No. : 0 402 846 067

Injection pump

Pump designation : PE6P12OA32ORS8015

EP type number : 0 412 826 016

Governor

Governer design. : RQV300...1025PA1225

Governer no. : 0 421 814 151

Cust. part No. : 11031773-P01

Customer-spec. information Customer : VME Motor : TD1:

Motor : TD122KAE Power KW : 243.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

REMARKS

BEGINNING OF DELIVERY

Test pressure par : Tolerance bar : +- 1.0

Prestroke mm : 4.00 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.00 Tolerance mm: + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

Barrel no. : 1

BASIC SETTING

Rack travel in mm : 3.80 Tolerance mm : + 0.30

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1095

مريد المراجعية	
guide sleeve - travel mm : 7.90 -	Tolerance 1/min : +- 5
Tolerance mm : + 0.25 -	rack travel mm : 4.00
TOTE CALLS	Rated speed rpm : 1135
Rated speed rpm : 325	Tolerance 1/min : +- 15
guide sleeve	Toccrance Training
travel mm : 2.09 -	rack travel mm : 0.50
Tolerance mm : + 0.25	Tolerance mm : + 0.50
	Rated speed rpm : 1250
Rated speed rpm : 1028	+
guide sleeve	+
travel mm : 6.85	†
Tolerance mm : + 0.25	1011 701 5
Rated speed rpm : 387	LOW IDLE
Rated speed rpm : 387 - guide sleeve -	
travel mm : 2.96	control lever
Tolerance mm : + 0.25	position degree : 74.0
, 5125	tolerance degree : + 4.0
Rated speed rpm : 437	+
guide steeve -	control lever
travel mm : 3.59 -	position degree : 10.0
Tolerance mm : + 0.25	tolerance degree : +- 4.0
	+
Rated speed rpm : 520	Setting point w/out bumper spring
guide sleeve	
travel mm : 4.67	Rated speed rpm : 225
Tolerance mm : + 0.25	t
Rated speed rpm : 1310	- CRT mm min. :> 5.40
guide steeve	Testing:
travel mm : 11.50 -	L restring.
Tolerance mm : + 0.50	Rated speed rpm : 325
-	rack travel mm : 3.80
	→ Tolerance mm : ← 0.30
GUIDE SLEEVE POSITION -	†
•	Rated speed rpm : 375
•	†
control lever	†
position degree : -1	ANEDOTO / AL TITLINE
rated speed rpm : 1100	ANEROID/ALTITUDE COMPENSATOR TEST
Rack travel in mm: 9.50	COLUMN TOWN TEST
Tolerance mm : + 2.00 -	
-	SETTING
-	
	Rated speed rpm : 500
CONTROL LEVER -	Pressure hPa : 1500
-	rack travel mm : 9.50
control lever	Tolerance mm : + 0.05
position degree : 59.0 -	Dated aread area : E00
tolerance degree : +- 4.0	Rated speed rpm : 500 Pressure hPa : -
control lever	ressure nra : - rack travel mm : 7.80
position degree : 123.0	Tolerance mm : +- 0.10
tolerance degree : + 4.0	- Total article limit
- 1.00 dog: 00 . 1.00	MEASUREMENT
RATED SPEED	
rack travel mm : 8.50	Rated speed rpm : 500
Rated speed rpm : 1085	+

Pressure hPa : 520 rack travel mm : 1.40 Tolerance mm : + 0.20

Pressure hPa : 300 rack travel mm : 0.25 Tolerance mm : + 0.05

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 700 Del. quantity

cm3/1000 strokes : 188.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 : +- 0.50 Tolerance mm Del. quantity

cm3/1000 strokes : 150.0 Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

: + 19.0 cm3/1000s.

### LOW IDLE

Rack travel in mm: 3.80 Tolerance mm : + 0.30

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 25.01.96 : ISO 4113

Test oil

Combination No. : 0 401 496 001

Injection pump

Pump designation : PE6R120/720RS1502 EP type number : 0 411 426 002

Governor

Governer design. : RE31

Governer no. : 0 421 890 200

Cust. part No. : 1556156

: -P07 v. 12/95

Customer-spec. information

Customer : VOLVO-TRUCK

Motor

: TD 163 ES,EJ

Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter :

x length mm : 600

3.0

REMARKS

Pump-specific values

in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar :

Tolerance bar : + 1.0

Prestroke mm : 5.40
Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50

Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at

n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR

**POSITION** 

Engine speed min-1: 0	+ Uact V : 4,500 + Tolerance Volt : + 0,115
Cotting point	f Tolerance Volt : + U,115
Setting point (P, R and H pump)	+ CRT mm : 19,00 + Tolerance mm : + 0,80
cry it denote bounds	T Total ance min : - 0,00
Uact V : 3.100	1
CRT mm : 13.00	+ ENGINE-SPEED SENSOR
Tolerance mm : +/- 0.05	(All P and R pumps not
Check	H and M pumps)
tolerance mm : +/- 0.10	+
	+ Test with control rod
Check value	in stop position
(P, R and H pump)	+
	+ Engine speed min-1: 60
	+ Amplitude V : 1.4
Uact V : 1.700	+ Tolerance V : +/- 0.6
CRT mm : 6.15	+ Check
Tolerance mm : +/- 0.25	+ tolerance V : +/- 1.20
Check	†
tolerance mm : +/- 0.30	+ Engine speed min-1: 600
	Difference
	+ Amplitude to
Setting point	+ Amplitude V : max.1.4
(mpump)	†
7 100	†
Uact V : 3.100 CRT mm : 12.50	(C) THURSTION DUMP LITTU POSTTYONED
CRT mm : 12.50 Tolerance mm : +/~ 0.05	(C) INJECTION PUMP WITH POSITIONER
Check	FUEL DELIVERY CHARACTERISTICS
tolerance mm : +/- 0.10	FUEL DELIVERY CHARACTERISTICS
coterance in	I
Check value	Rated speed rpm : 950
(M pump)	+ Uact V : 2.750
ar Familia	Del. quantity
Uact V : 1.700	+ cm3/1000 strokes : 295.0
CRT mm : 5.50	+ Tolerance
Tolerance mm : +/- 0.25	+ cm3/1000 strokes : + 3.0
Check	+ Check tolerance
tolerance mm : +/- 0.30	+ cm3/1000s. : +- 6.0
	Spreed
Stop position	+ Tolerance
(P, R and H pump)	+ cm3/1000 strokes : 9.0
	+ Check tolerance
Uact V : Value with	+ cm3/1000s. : 13.0
deenergised adjusting magnet	†
and control rod in	Detect aread area
stop position.	Rated speed rpm : 950
CRT mm : 0.75 Tolerance mm : +/- 0.25	+ Uact V : 2.000
Tolerance mm : +/~ 0.25 Check	+ Del. quantity + cm3/1000 strokes : 163.0
tolerance mm : +/- 0.35	+ Tolerance
LOCE GIVE IIII . F/ 0.33	- cm3/1000 strokes : + 3.0
Stop position	Check tolerance
(M pump)	- cm3/1000s. : +- 6.0
Uact V : 0,720	1
Tolerance Volt : + 0,065	TEST POINT L1
CRT mm : 1,00	+
	+ Rated speed rpm : 300
Starting position	+ Uact V : 1.530
(M pump)	+ Tolerance Volt : + 0.060
	•

Check tolerance

Volt : + 0.060

Del. quantity cm3/1900 strokes : 20.0

Tolerance

cm3/1000 strokes : + 3.0

Spreed

Tolerance

cm3/1000 strokes : 7.0

Check tolerance

cm3/1000s. 11.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 08,07,96 : ISO 4113

Combination No. : 0 400 196 003

Injection pump

Pump designation : PES6M60C320RS206

EP type number : 0 410 066 001

Governor

Governer design. : RE22

Governer no. : 0 420 090 004

Cust. part No. :

Customer-spec. information Customer : MB-PKW

Motor

: OM 606 D30 LA

Power KW

: 130.0

# TEST BENCH REQUIREMENTS

Inlet line : 1.1;

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 1 469 990 351

Inlet press. bar :

1.0

Tolerance bar :  $\leftarrow$  0.1

Test nozzle holde

assembly : 0 688 901 111

Opening pressure

bar

: 148.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 1.55 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 17.00 Tolerance mm :  $\leftarrow$  1.00

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

°NW after s.o.d. : 17.00 : **←** 0.20 Tolerance

Check

tolerance \*NW : +- 0.30

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR **POSITION** Engine speed min-1: Setting point (P, R and H pump) Uact V : 3.100 CRT man 13.00 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10 Check value (P, R and H pump) 1.700 Uact V CRT mm 6.15 Tolerance mm : +/- 0.25 Check tolerance mm : +/~ 0.30 Setting point (M pump) Uact V 3.100 CRT mm 12.50 : +/- 0.05 Tolerance mm Check : +/- 0.10 tolerance mm Check value (M pump) 1.700 Uact V CRT mm 5.50 : +/- 0.25 Tolerance mm Check tolerance mm : +/- 0.30 Stop position (P, R and H pump) Uact V : Value with deenergised adjusting magnet and control rod in stop position. CRT mm 0.75 Tolerance mm : +/- 0.25 Check : +/- 0.35 tolerance mm Stop position (M pump) Uact V 0,720 Tolerance Volt : + 0,065

Starting position (amua M) Uact V 4,500 Tolerance Volt : + 0.115CRT mm 19,00 Tolerance mm 0,80 ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps) Test with control rod in stop position Engine speed min-1: Amplitude V 1.4 : +/- 0.6 Tolerance V Check tolerance V : +/- 1.20 Engine speed min-1: Difference Amplitude to Amplitude V : max.1.4 (C) INJECTION PUMP WITH POSITIONER TEST POINT V1 Rated speed rpm : 1000 Uact V 3.250 : Del. quantity cm3/1000 strokes : 60.0 Tolerance cm3/1000 strokes : +-0.5 Check tolerance cm3/1000s. 2.0 Spreed Tolerance cm3/1000 strokes : 2.5 Check tolerance cm3/1000s. 3.0 FUEL DELIVERY CHARACTERISTICS 2200 Rated speed rpm Uact V 3.250 Del. quaritity cm3/1000 strokes : 64.0 Check tolerance cm3/1000s. : +- 2.0 Spreed Check tolerance cm3/1000s.3.5

1,00

CRT mm

Rated speed rpm Uact V	: 500 : 3.250
Del. quantity cm3/1000 strokes Check tolerance	: 55.0
cm3/1000s. Spreed	: <b>←</b> 2.0
Check tolerance cm3/1000s.	: 3.0
TEST POINT L1	
Rated speed rpm Uact V Del. quantity	: 310 : 1.950
cm3/1000 strokes Tolerance	: 11.5
cm3/1000 strokes Spreed	: + 2.2
Tolerance cm3/1000 strokes Check tolerance	: 1.5
cm3/1009S.	: 2.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	3.250
Del. quantity		
cm3/1000 strokes	:	53.2
Check tolerance		
cm3/1000s.	: +-	2.5
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000S.	:	8.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 05.06.96 : ISO 4113

Combination No. : 0 402 648 787

Injection pump

Pump designation : PE8P120A320LS7899 EP type number : 0 412 628 916

Governor

Governer design. : RQV350...1050PA1308

Governer no. : 0 421 814 181

Cust. part No. : 0250742502

Customer-spec. information Customer : MB-NFZ

Motor : 0M442 LA Power KW : 405.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C : 40 Tolerance °C : → 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Tolerance l/h: + 10.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : 4.75
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 20.53 Tolerance mm :  $\leftarrow$  0.50

Firing order : 8-7-2-6-3 :-5-4-1

Phasing

: 0-45-90-135-180

: -225-270-315

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.00

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 282.0

Tolerance

cm3/1000 strokes : + 1.0

A10

	+ Tolerance mm : +- 0.25
Check tolerance cm3/1000s. : + 4.0	Rated speed rpm : 1280  guide sleeve
Spreed	travel mm : 11.50 Tolerance mm : + 0.50
Tolerance cm3/1000 strokes : 6.0	
Check tolerance cm3/1000s : 9.0	GUIDE SLEEVE POSITION
cm3/1000s. : 9.0	control lever position degree : - 1
Rated speed rpm : 350	Rated speed rpm : 1136
Rack travel in mm : 5.70 Tolerance mm : +- 0.10	Rack travel in mm: 13.50 Tolerance mm: + 1.30
Del. quantity cm3/1000 strokes : 19.0 Tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : +- 3.0 Check tolerance	+ Rated speed rpm : 1050 + Aneroid pressure
cm3/1000s. : +- 6.0 Spreed	hFa : 1300 Del. quantity
Tolerance cm3/1000 strokes : 6.0	t cm3/1000 strokes : 282.0 Tolerance
Check tolerance cm3/1000s. : 10.0	+ cm3/1000 strokes : + 1.0 + Check tolerance + cm3/1000s. : + 4.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 9.0
GUIDE SLEEVE TRAVEL	
Rated speed rpm : 1111 guide sleeve	CONTROL LEVER
travel mm : 8.58 Tolerance mm : + 0.15	control lever
Rated speed rpm : 350 guide sleeve	position degree : 121.0 tolerance degree : +- 4.0
travel mm : 2.05 Tolerance mm : + 0.20	RATED SPEED rack travel mm : 14.00 Rated speed rpm : 1098
Rated speed rpm : 1640 guide sleeve	Tolerance 1/min : +- 8
travel mm : 25.13 Tolerance mm : + 0.25	rack travel mm : 4.00 Rated speed rpm : 1175
Rated speed rpm : 830	Tolerance 1/min : + 15
	+ rack travel mm : 0.75
guide sleeve travel mm : 6.20 Tolerance mm : + 0.25	rack travel mm : 0.75 Tolerance mm : + 0.75 Rated speed rpm : 1250
guide sleeve travel mm : 6.20	+ Tolerance mm : + 0.75

#### LOW IDLE

control lever

position degree : 68.0 tolerance degree : + 4.0

Setting point w/out bumper spring

250 Rated speed rpm :

CRT mm min. :> 7.54

Testing:

Rated speed rpm : 350 rack travel mm : 5.70 : ← 0.10 Tolerance mm

Rated speed rpm: : 400

TORQUE CONTROL

Rated speed rpm : 1050 rack travel mm : 15.00 Tolerance mm : **←** 0.05

Rated speed rpm : 600 rack travel mm : 15.00 : ← 0.05 Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

500 Rated speed rpm : Pressure hPa

MEASUREMENT

500 Pressure hPa rack travel mm : 1.40 : +- 0.05 Tolerance mm

: 1000 Pressure hPa rack travel mm : 6.00 Tolerance mm : +- 0.20

Start interlock

Rated speed rpm 100 : > Rated speed rpm : < 270 Check

speed 1/min :> 80

Check

speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 1300 Rated speed rpm 600 Del. quantity

cm3/1000 strokes : 298.5 Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance cm3/1000s. : +-5.0

Spreed

Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. 12.0

Aneroid pressure

hPa Rated speed rpm 500

Del. quantity

cm3/1000 strokes : 132.0 Tolerance

cm3/1000 strokes : +- 1.0Check tolerance cm3/1000s. : +- 4.0

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. 12.0

REDUCED QUANTITY

Aneroid pressure

hPa 1300 Rated speed rpm 1050 Del. quantity

cm3/1000 strokes : 225.0

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. : +- 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 280.0 Tolerance cm3/1000 strokes :  $\leftarrow$  10.0 Check tolerance cm3/1000s. : +- 14.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm: 5.70 Tolerance nm:  $\leftarrow 0.10$ Del. quantity cm3/1000 strokes : 19.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed

Tolerance

cm3/1000 strokes : 6.0 Check tolerance : 10.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 28.10.94 Edition : 28.10.94
Test oil : ISO 4113

Combination No. : 0 402 036 744

Injection pump

Pump designation : PES6P12OA720/3LS3255

EP type number : 0 412 026 739

Governor

Governer design. : RQV300...1000PA876

: -12 Governer no. : 0 421 813 897

Cust. part No. : 3-7039

Customer-spec. information

Customer : MAN

Motor

: D2866LF05

Power KW : 272.0

### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

: 40

Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 067

Outside diameter : 6.0

A14

x inside diameter: 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.75 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 15.00

Tolerance mm : + 1.50

Firing order : \_6- 2- 4- 1- 5-

: 3

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm: 15.15

Tolerance mm :  $\leftarrow$  0.05

Rated speed rpm : 300

Rack travel in mm : 5.00

Tolerance mm : +- 0.10

Del. quantity	+	•	
cm3/1000 strokes	: 20.0	Rated speed rpm	: 200
Tolerance	†		
cm3/1000 strokes	: +- 3.0 †	CRT mm min.	: > 6.50
Check tolerance cm3/1000s.	: ← 6.0 ‡	· Testing:	
Spreed	I 3.5	restrig.	
Tolerance	1	Rated speed rpm	: 300
cm3/1000 strokes	: 8.0	rack travel mm	: 5.00
Check tolerance	+	Rated speed rpm rack travel mm Tolerance mm	: + 0.10
cm3/1000\$.	: 12.0	•	
	†	Rated speed rpm	: 340
(B) SETTING OF IN	LIECTION PUMP	•	
WITH GOVERNOR	T	TORQUE CONTROL	
	1		: 700
	+	Rated speed rpm rack travel mm Tolerance mm	: 15.15
		Tolerance mm	: +- 0.05
GUIDE SLEEVE POSI	TION	•	
	†	Rated speed rpm rack travel mm	: 1000
control lever	1	· Tolerance mm	· + 0.05
position degree	: - 1	. Tocci difice likit	0.05
Rated speed rpm		Rated speed rpm	: 700
,	+	rack travel mm	: 8.00
Rack travel in mo		Tolerance mm	: +- 0.10
Tolerance mm	: +- 1.30	•	
	1	ANEROID/ALTITUDE	
		COMPENSATOR TEST	
CONTROL LEVER	1	,	
	+		
control lever	. 703.0	SETTING	
position degree tolerance degree		Rated speed rpm	. 500
toterance degree	I	Pressure hPa	: 500 : 1200
RATED SPEED	4	rack travel mm	: 15.15
rack travel mm	: 14.10	rack travel mm Tolerance mm	: +- 0.05
Rated speed rpm		•	
Tolerance 1/min	: <b>←</b> 5	Rated speed rpm	: 500
manale Amareal man	: 4.00	Pressure hPa	: – 12.10
rack travel mm Rated speed rpm		rack travel mm Tolerance mm	
Tolerance 1/min			
The second secon	1	MEASUREMENT	
rack travel mm	: 0.50		
Tolerance mm		Rated speed rpm	: 500
Rated speed rpm	: 1300	Dagasina LD-	
	1	Pressure hPa rack travel mm	: 470 : 14.20
	I	Tolerance mm	: +- 0.20
		TOTAL MITOURING	
LOW IDLE	1	Pressure hPa	
	+	rack travel mm	
	+	Tolerance mm	: +- 0.05
control lever	. 259 0	·	
position degree tolerance degree		Start interlock	
cote ance degree	7- 7.0	Start miteriotk	
Setting point w/o	out bumper spring	Rated speed rpm	: > 100
-5 to the same			-

Rated speed rpm	: < 220
Check speed 1/min Check	: > 80
speed 1/min	; < 240
FUEL DELIVERY CHA	ARACTERISTICS
Aneroid pressure	: 1200
Rated speed rpm Del. quantity	: 1200 : 1000
cm3/1000 strokes Tolerance	: 245.0
cm3/1000 strokes Check tolerance	: + 2.0
cm3/1000s.	: <b>←</b> 5.0
Aneroid pressure	•
Rated speed rpm Del. quantity	700
cm3/1000 strokes Tolerance	: 94.0
cm3/1000 strokes Check tolerance	: +- 5.0
cm3/1000S. Spreed	· + 8.0
Tolerance cm3/1000 strokes	: 10.0
Aneroid pressure	: -
Rated speed rpm Del. quantity	500
cm3/1000 strokes Tolerance	
cm3/1000 strokes Check tolerance	
cm3/1000s.	: <b>←</b> 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm Del. quantity	: 100
cm3/1000 strokes Tolerance	: 220.0
cm3/1000 strokes Check tolerance	: <b>←</b> 10.0
cm3/1000s.	: + 14.0

LOW IDLE			
Rated speed rpm	:	300	
Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: +-	5.00 0.10 20.0 3.0	
Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +-	6.0 8.0 12.0	
31107 10000°	•	12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 15.06.94 Test oil : 15.06.94

Combination No. : 0 402 736 828

Injection pump

Pump designation : PES6P120A720/3LS7251

EP type number : 0 412 726 860

Governor

Governer design. : RQV300...1000PA960

: -7K Governer no. : 0 421 815 307

Cust. part No. : 3-7207

Customer-spec. information Customer : MAN Motor : D286

: D2866LF09

Power KW : 309.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet temp. °C : 40 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter :

x inside diameter :

3.0

x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.85 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 15.50

Tolerance mm : + 1.50

Firing order : 6-2-4-1-5-

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.95

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 296.0	Tolerance mm : + 0.25
Tolerance	Rated speed rpm : 343 guide sleeve
cm3/1000 strokes : + 1.0	travel mm : 2.62
<u> </u>	Tolerance mm : + 0.25
Check tolerance	
cm3/1000s. : + 4.0	Rated speed rpm : 450
+	guide sleeve
Spreed	travel mm : 3.71
+	Tolerance man : +- 0.25
Tolerance +	- · · · · · · · · · · · · · · · · · · ·
cm3/1000 strokes : 10.0	Rated speed rpm : 1260
Check tolerance	guide steeve
cm3/1000s. : 14.0	travel mm : 13.50 Tolerance mm : +- 0.50
I 14.0	Toterance min . +- 0.50
1	GUIDE SLEEVE POSITION
Rated speed rpm : 300	00196 066646 1 00111014
Rack travel in mm: 5.20	control lever
Tolerance mm : + 0.10	position degree : - 1
Del. quantity +	Rated speed rpm : 1120
cm3/1000 strokes : 32.0	
Tolerance	Rack travel in mm : 12.50
cm3/1000 strokes : + 3.0	Tolerance mm : + 2.00
Check tolerance + 6.0 +	
Spreed	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	FOLE EDAD DELIVERY AT FOLE EDAD STOP
cm3/1000 strokes : 8.0	Rated speed rpm : 900
Check tolerance	Aneroid pressure
cm3/1000s. : 12.0	hPa : 1200
+	Del. quantity
+	cm3/1000 strokes : 296.0
(B) SETTING OF INJECTION PUMP	Tolerance
WITH GOVERNOR	cm3/1000 strokes : +- 1.0
†	Check tolerance
GUIDE SLEEVE TRAVEL	cm3/1000s. : +- 4.0 Spreed
GOIDE SLEEVE TRAVEL	Tolerance
Rated speed rpm : 1058	cm3/1000 strokes : 10.0
guide steeve	Check tolerance
travel mm : 10.48	cm3/1000s. : 14.0
Tolerance mm : + 0.25	
+	
Rated speed rpm : 300	
guide sleeve	CONTROL LEVER
travel mm : 2.16	auchant lavan
Tolerance mm : + 0.25	control lever
Rated speed rpm : 749	position degree : 300.0 tolerance degree : +- 4.0
guide sleeve	toter drive degree . 1- 4.0
travel mm : 6.97	RATED SPEED
Tolerance mm : + 0.25	rack travel mm : 12.50
+	Rated speed rpm : 1045
Rated speed rpm : 293	Tolerance 1/min : +- 5
guide sleeve	
travel mm : 1.97	rack travel mm : 4.00

Rated speed rpm Tolerance 1/min rack travel mm Tolerance mm	: ← 15 : 0.50 : ← 0.50
Rated speed rpm  LOW IDLE	: 1500
control lever position degree tolerance degree	: 256.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 6.70
Testing:	
Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm	: 360
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 900 : 13.95 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm Tolerance mm	: 750 : 13.40 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 750 : 6.50 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	
ANEROID/ALTITUDE COMPENSATOR TEST	

Rated speed rpm	: 900
Pressure hPa rack travel mm	: 1200 : 13.95
Tolerance mm	: 900 : 1200 : 13.95 : +- 0.05
TO COT COTTOC THAT	0.05
Rated speed rpm	: 900 : -
Pressure hPa	: -
rack travel mm	
Tolerance mm	: + 0.10
MEASUREMENT	
Rated speed rpm	: 900
Pressure hPa	: 720
rack travel mm	
Tolerance mm	: 11.95 : +- 0.15
Danasiuma kDa	220
Pressure hPa rack travel mm	: 220 : 9.45 · + 0.05
Tolerance mm	: + 0.05
Start interlock	
Rated speed rpm	: > 100
Rated speed rpm Rated speed rpm	: < 240
Check	
speed 1/min	: > 80
Check	
speed 1/min	: < 260
FUEL DELTUEDY CON	ADACTEDIATICS
FUEL DELIVERY CHA	AKAC (EKIS) ICS

Aneroid pressure hPa 1200 Rated speed rpm : 1000 Del. quantity cm3/1000 strokes : 269.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : +- 6.0 Aneroid pressure hPa 1200 Rated speed rpm 750 Del. quantity cm3/1000 strokes : 287.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance cm3/1000s.

6.0

Aneroid pressure hPa 750 Rated speed rom Del. quantity cm3/1000 strokes : 109.0 Tolerance cm3/1000 strokes : + 5.0 Check tolerance cm3/1000s. 8.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance 14.0 cm3/1000s.Aneroid pressure hPa 500 Rated speed rpm Del. quantity cm3/1000 strokes : 169.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000S. STARTING FUEL DELIVERY Del. quantity cm3/1000 strokes : 210.0 Tolerance cm3/1000 strokes : + 15.0 Check tolerance cm3/1000s.: +- 19.0 LOW IDLE Rated speed rpm : 300 Rack travel in mm : 5,20 : + 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s.: +-6.0 Spreed Tolerance cm3/1000 strokes : 8.0

End of test specification sheet

Check tolerance cm3/1000s.

12.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 30.06.94 Test oil : 30.06.94

Combination No. : 0 402 736 849

Injection pump

Pump designation : PES6P120A720/3LS7251

EP type number : 0 412 726 860

Governor

Governer design. : RQV300...1000PA962

: -12K Governer no. : 0 421 815 407

Cust. part No. : 3-7373

Customer-spec. information Customer : MAN Motor : D286

Motor : D2866LF09 Power KW : 398.0

### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter:

x Length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : ∠26.0 Tolerance bar : ← 1.0

Prestroke mm : 4.85
Tolerance mm : + 0.05 Check

tolerance mm : ← 0.10

Rack travel in mm : 15.50 Tolerance mm : + 1.50

Firing order : 6-2-4-1-5-

: 3

: 0-60-120-180-240 Phasing

: -300

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm: 13.95

Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 294.0	Tolerance mm : +- 0.25 Rated speed rpm : 355
Tolerance	guide sleeve
cm3/1000 strokes : +- 1.0	- travei mm : 2.53
Charle to Law	Tolerance mm : + 0.25
Check tolerance cm3/1000s. : +- 4.0	- Rated speed rpm : 470
CH3/10003 — 4.0	- Rated speed rpm : 470 - guide sleeve
Spreed	travel mm : 3.67
+	Tolerance mm : + 0.25
Tolerance + 10.0	
cm3/1000 strokes : 10.0	Rated speed rpm : 1260
Check tolerance	guide sleeve travel mm : 13.50
cm3/1000s. : 14.0	Tolerance mm : +- 0.50
Dahadan ada 700	GUIDE SLEEVE POSITION
Rated spesd rpm : 300	•
Rack travel in mm: 5.20	- control lever
Tolerance mm : + 0.10	position degree : - 1
Del. quantity	Rated speed rpm : 1120
cm3/1000 strokes : 32.0	
Tolerance + 3.0 +	Rack travel in mm: 12.50
Check tolerance	Tolerance mm : +- 2.00
cm3/1000s. : +- 6.0	
Spreed	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance +	•
cm3/1000 strokes : 8.0	Rated speed rpm : 900
Check tolerance + 12.0 + 12.0	- Aneroid pressure - hPa : 1300
T 12.0	Del. quantity
+	cm3/1000 strokes : 294.0
(B) SETTING OF INJECTION PUMP	Tolerance
WITH GOVERNOR +	cm3/1000 strokes : + 1.0
	Check tolerance : +- 4.0
GUIDE SLEEVE TRAVEL	Spreed
+	Tolerance
Rated speed rpm : 1061	cm3/1000 strokes : 10.0
guide sleeve + travel mm : 10.46 +	Check tolerance
travel mm : 10.46 + Tolerance mm : + 0.25	cm3/1000s. : 14.0
rocci di lee min	•
Rated speed rpm : 300	
guide sleeve	CONTROL LEVER
travel mm : 1.88	a amband daysan
Tolerance mm : +- 0.25	control lever position degree : 300.0
Rated speed rpm : 764	tolerance degree : +- 4.0
guide sleeve	
travel mm : 6.96	RATED SPEED
Tolerance mm : + 0.25	rack travel mm : 12.40
Rated speed rpm : 305	Rated speed rpm : 1045 Tolerance 1/min : +- 5
guide sleeve	. Total and thill the second
travel mm : 1.88	rack travel mm : 4.00

Rated speed rpm Tolerance 1/min	
rack travel mm Tolerance mm Rated speed rpm	: <b>←</b> 0.50
LOW IDLE	·
control lever position degree tolerance degree	: 252.0 : +- 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 6.70
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 5.20 : + 0.10
Rated speed rpm	: 330
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm Tolerance mm	: 1000 : 13.50 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 750 : 13.40 : ← 0.10
Rated speed rpm rack travel mm Tolerance mm	: 750 : 6.50 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900 : 1300 : 13.95 : ← 0.05

Pressure hPa rack travel mm Tolerance mm	: 900 : − : 9.10 : ← 0.10
MEASUREMENT	
Rated speed rpm	: 900
Pressure hPa rack travel mm Tolerance mm	: 720 : 11.90 : ← 0.20
Pressure hPa rack travel mm Tolerance mm	: 220 : 9.45 : ← 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 240
Check speed 1/min Check	: > 80
speed 1/min	: < 260
Aneroid pressure hPa Rated speed rpm	: 1300 : 1000
hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 1000
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1000
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1000 : 269.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 1000 : 269.0 : ← 3.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1000 : 269.0 : + 3.0 : + 6.0 : 1300 : 750
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1000 : 269.0 : + 3.0 : + 6.0 : 1300 : 750 : 287.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa	: 1000 : 269.0 : + 3.0 : + 6.0 : 1300 : 750 : 287.0 : + 3.0 : + 6.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure	: 1000 : 269.0 : + 3.0 : + 6.0 : 1300 : 750 : 287.0 : + 3.0

Tolerance cm3/1000 strokes	: ← 5.0	
Check tolerance		
cm3/1000s.	: +- 8.0	
Spreed Tolerance		
cm3/1000 strokes	: 10.0	
Check tolerance	1040	
cm3/1000s.	: 14.0	
Aneroid pressure		
hPa	: -	
Rated speed rpm	: 500	
Del. quantity	. 4(0.0	
cm3/1000 strokes Tolerance	: 169.0	
cm3/1000 strokes	: + 1.0	
Check tolerance		
cm3/1000s.	: + 4.0	
STARTING FUEL DEL	IVERY	
Del. quantity		
cm3/1000 strokes	: 210.0	
Tolerance cm3/1000 strokes	: + 15.0	
Check tolerance	13.0	
cm3/1000s.	: + 19.0	
LOW IDLE		
LOW IDLE Rated speed rpm	: 300	
Rated speed rpm	: 5.20	
Rated speed rpm Rack travel in mm Tolerance mm		
Rated speed rpm Rack travel in mm Tolerance mm Del. quantity	: 5.20 : + 0.10	
Rated speed rpm Rack travel in mm Tolerance mm Del. quantity Cm3/1000 strokes	: 5.20 : + 0.10	
Rated speed rpm Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 5.20 : + 0.10	
Rated speed rpm Rack travel in mm Tolerance mm Del. quantity Cm3/1000 strokes Tolerance Cm3/1000 strokes Check tolerance	: 5.20 : + 0.10 : 32.0 : + 3.0	
Rated speed rpm Rack travel in mm Tolerance mm Del. quantity Cm3/1000 strokes Tolerance Cm3/1000 strokes Check tolerance Cm3/1000s.	: 5.20 : + 0.10 : 32.0	
Rated speed rpm Rack travel in mm Tolerance mm Del. quantity Cm3/1000 strokes Tolerance Cm3/1000 strokes Check tolerance Cm3/1000s. Spreed	: 5.20 : + 0.10 : 32.0 : + 3.0	
Rated speed rpm Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 5.20 : + 0.10 : 32.0 : + 3.0	
<b></b>	: 5.20 : + 0.10 : 32.0 : + 3.0 : + 6.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 13.12.96 Test oil : ISO 4113

Combination No. : 0 400 195 001

Injection pump

Pump designation : PES5M55C32ORS202 EP type number : 0 410 055 971

Governor

Governer design. : RE

Governer no. : 0 420 090 002

Cust. part No. :

Customer—spec. information
Customer : MB-PKW
Motor : uM 605
Power KW : 83.0

#### TEST BENCH REQUIREMENTS

Inlet line : 1.1;

Test oil inlet

temp. °C : 40 Tolerance °C :  $\leftarrow$  2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 111

Opening pressure

bar : 148.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

#### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 1.75
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 17.00 Tolerance mm : + 1.00

Firing order : 1-2-4-5-3

Phasing : 0-72-144-216-288

Start of delivery blocking

 $^{\circ}$ NW after s.o.d. : 16.50 Tolerance :  $\leftarrow$  0.20 Check

tolerance °NW : + 0.30

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

A25

Engine speed min-1: 0  Setting point (P, R and H pump)	+ Uact V : 4,500 Tolerance Volt : + 0,115 CRT mm : 19,00 Tolerance mm : + 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10	ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)
Check value (P, R and H pump)	Test with control rod in stop position
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30	<pre>Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : +/- 0.6 Check tolerance V : +/- 1.20 Engine speed min-1: 600</pre>
Setting point (M pump)	Difference  Amplitude to  Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : +/- 0.05 Check	(C) INJECTION PUMP WITH POSITIONER  TEST POINT V1
tolerance mm : +/- 0.10  Check value (M pump)	+ Rated speed rpm : 1000 + Uact V : 3.250 + Del. quantity
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : +/- 0.25	+ cm3/1000 strokes : 35.5 + Tolerance - cm3/1000 strokes : + 0.5 Check tolerance
Check tolerance mm : +/- 0.30	cm3/1000S. : +- 1.2 Spreed Tolerance
Stop position (P, R and H pump)	+ cm3/1000 strokes : 2.5 + Check tolerance + cm3/1000s. : 3.0
Uact V : Value with deenergised adjusting magnet and control rod in	FUEL DELIVERY CHARACTERISTICS
stop position.  CRT mm : 0.75  Tolerance mm : +/- 0.25  Check tolerance mm : +/- 0.35	Rated speed rpm : 2500  Uact V : 3.250  Del. quantity  cm3/1000 strokes : 41.6  Check tolerance  cm3/1000s. : + 1.5
Stop position (M pump) Uact V : 0,720 Tolerance Volt : + 0,065 CRT mm : 1,00	Spreed Check tolerance cm3/1000s. : 3.3
Starting position (M pump)	Rated speed rpm : 500 Uact V : 3.250

Del. quantity cm3/1000 strokes	<b>:</b> 33.2
Check tolerance cm3/1000s.	: +- 1.2
Spreed Check tolerance	
cm3/1000s.	: 3.0
TEST POINT L1	
Rated speed rpm	: 315
Uact V Del. quantity	: 2.200
cm3/1000 strokes Spreed	: 7.3
Tolerance	4.0
cm3/1000 strokes Check tolerance	: 1.0
cm3/1000s.	: 1.8

# STARTING FUEL DELIVERY

Rated speed rpm	•	100
Uact V	:	4.000
Del. quantity		
cm3/1000 strokes	:	52.2
Check tolerance		
cm3/1000s.	: +	- 3.5
Spreed		
Check tolerance		
cm3/1000s.	:	5.5

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 13.12.96 Edition Test oil : ISO 4113

Combination No. : 0 400 195 002

Injection pump

Pump designation : PES5M60C320RS205 EP type number : 0 410 065 001

Governor

Governer design. : RE22

Governer no. : 0 420 090 002

Cust. part No. :

Customer-spec. information Customer : MB-PKW

: OM 605 D 25 LA Motor

: 110.0 Power KW

### TEST BENCH REQUIREMENTS

Inlet line : 1.1;

Test oil inlet

40 temm. °C : + 2.0 Tolerance °C

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0 Tolerance bar  $: \leftarrow 0.1$ 

Test nozzle holde

: 0 688 901 111 assembly

Opening pressure

: 148.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

### **REMARKS**

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 1.55 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 17.00 Tolerance mm : + 1.00

Firing order : 1-2-4-5-3

: 0-72-144-216-283 Phasing

Start of delivery blocking

\*NW after s.o.d. : 17.00 Tolerance : + 0.20 Tolerance Check

tolerance \*NW : +- 0.30

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0	+ Uact V : 4,500 + Tolerance Volt : +- 0,115 + CRT mm : 19,00 - Tolerance mm : +- 0.80
Setting point (P, R and H pump)	CRT mm : 19,00 Tolerance mm : + 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10	ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)
Check value (P, R and H pump)	Test with control rod in stop position
Uact V : 1.700 CRT mam : 6.15 Tolerance mma : +/- 0.25 Check	+ Engine speed min-1: 60 + Amplitude V : 1.4 + Tolerance V : +/- 0.6 - Check + tolerance V : +/- 1.20
tolerance mma : +/- 0.30	Engine speed min-1: 600 Difference Amplitude to
Setting point (M pump)	+ Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10	(C) INJECTION PUMP WITH POSITIONER  TEST POINT V1
Check value (M pump)	Rated speed rpm : 1000 Uact V : 3.250 Del. quantity
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : +/- 0.25	<pre>+ cm3/1000 strokes : 58.0 + Tolerance + cm3/1000 strokes : + 0.5 + Check tolerance</pre>
Check tolerance mm : +/- 0.30	+ cm3/1000s. : + 1.4 + Spreed + Tolerance
Stop position (P, R and H pump)	+ cm3/1000 strokes : 2.5 + Check tolerance + cm3/1000s. : 3.0
Uact V : Value with deenergised adjusting magnet and control rod in	FUEL DELIVERY CHARACTERISTICS
stop position.  CRT mm : 0.75  Tolerance mm : +/- 0.25  Check tolerance mm : +/- 0.35	Rated speed rpm : 2200 Uact V : 3.250 Del. quantity cm3/1000 strokes : 62.4 Check tolerance
Stop position (M pump)	- cm3/1000s. : +- 1.5 - Spreed - Check tolerance
Uact V : 0,720 Tolerance Volt : + 0,065 CRT mm : 1,00	cm3/1000s. : 3.3
Starting position (M pump)	Rated speed rpm : 500 Uact V : 3.250

Del. quantity cm3/1000 strokes Check tolerance cm3/1000s. Spreed Check tolerance cm3/1000s.	: 53.5 : + 1.4 : 3.0
Rated speed rpm Uact V Del. quantity cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/i000s.	: 340 : 1.950 : 11.2 : 1.5 : 2.2
STARTING FUEL DEL Rated speed rpm Uact V Del. quantity cm3/1000 strokes Check tolerance cm3/1000s. Spreed Check tolerance cm3/1000s.	: 100 : 3.250 : 52.0 : + 3.5 : 6.5

End of test specification sheet

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 13.12.96 : ISO 4113

Combination No. : 0 400 195 004

Injection pump

Pump designation : PES5M60C320RS205 EP type number : 0 410 065 001

Covernor

Governer design. : RE22

Governer no. : 0 420 090 003

Cust. part No. :

Customer-spec. information

Customer : MB-PKW

Motor

: OM 605 D 25 LA

Power KW

: 110.0

# TEST BENCH REQUIREMENTS

Inlet line : 1.1:

Test oil inlet

temp. °C

Tolerance °C

: <del>-- 2.0</del>

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0
Tolerance bar : + 0.1

Test nozzle holde

assembly

: 0 688 901 111

Opening pressure

bar

148.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

**B03** 

x inside diameter: 2.0 x length mm : 600

### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting.

Setting of constant delivery

under Section C.

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 1.55
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 17.00 Tolerance mm : +- 1.00

Firing order : 1-2-4-5-3

Phasing : 0-72-144-216-288

Start of delivery blocking

\*NW after s.o.d. : 17.00 : +- 0.20 Tolerance

Check

tolerance \*NW : +- 0.30

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR

**POSITION** 

Engine speed min-1: 0	+ Uact V : 4,500 + Tolerance Volt : +- 0,115
Setting point (P, R and H pump)	CRT mm : 19,00 Tolerance mm : +- 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10	ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)
Check value (P, R and H pump)	Test with control rod in stop position
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : +/- 0.25	Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : +/- 0.6 Check tolerance V : +/- 1.20
Check tolerance mm : +/- 0.30	Engine speed min-1: 600 Difference Amplitude to
Setting point (M pump)	Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : +/- 0.05 Check	(C) INJECTION PUMP WITH POSITIONER TEST POINT V1
tolerance mm : +/- 0.10	Rated speed rpm : 1000
Check value (M pump)	+ Uact V : 3.250 + Del. quantity + cm3/1000 strokes : 58.0
Uact V : 1.700	† Tolerance
CRT mm : 5.50	+ cm3/1000 strokes : + 0.5
Tolerance mm : +/- 0.25	+ Check tolerance
Check tolerance mm : +/- 0.30	+ cm3/1000S. : + 1.4 + Spreed + Tolerance
Stop position (P, R and H pump)	+ cm3/1000 strokes : 2.5 + Check tolerance
Uact V : Value with deenergised adjusting magnet	+ cm3/1000s. : 3.0 + FUEL DELIVERY CHARACTERISTICS
and control rod in	+
stop position.	+ Rated speed rpm : 2200
CRT mm : 0.75 Tolerance mm : +/- 0.25	+ Uact V : 3.250
Tolerance mm : +/- 0.25 Check	+ Del. quantity + cm3/1000 strokes : 62.4
tolerance mm : +/- 0.35	+ Check tolerance
Stop position	cm3/1000s. : + 1.5 + Spreed
(M pump)	+ Check tolerance
Uact V : 0,720	+  cm3/1000s. : 3.3
Tolerance Volt : + 0,065 CRT mm : 1,00	I
CAT 1999	Rated speed rpm : 500
Starting position (M pump)	+ Uact V : 3.250

Del. quantity cm3/1000 strokes Check tolerance cm3/1000s.	: +-	53.5 1.4		
Spreed	•			
Check tolerance cm3/1000s.	:	3.0		
TEST POINT L1				
Rated speed rpm Uact V	:	340 1.950		
Del. quantity cm3/1000 strokes Spreed	:	11.2		
Tolerance cm3/1000 strokes Check tolerance	:	1.5		
cm3/1000s.	:	2.2		
STARTING FUEL DEL	IVERY		<del></del>	
Rated speed rpm	:	100		
Uact V	:	3.250		
Del. quantity				
cm3/1000 strokes	:	52.0		
Check tolerance		7 -		
cm3/1000S.	: +-	3.5		
Spreed				

End of test specification sheet

6.5

Check tolerance cm3/1000s.

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 13.12.96 Test oil : ISO 4113

Combination No. : 0 400 196 002

Injection pump

Pump designation : PES6M55C32ORS2O4 EP type number : 0 410 056 969

Governor

Governer design. : RE22

Governer no. : 0 420 090 002

Cust. part No. :

Customer-spec. information Customer : MB-PKW Motor : OM 606 Power KW : 100.0

### TEST BENCH REQUIREMENTS

Inlet line : 1.1;

Test oil inlet

temp. \*C : 40
Tolerarice \*C : + 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0 Tolerance bar :  $\leftarrow 0.1$ 

Test nozzie holde

assembly : 0 688 901 111

Opening pressure

bar : 148.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

B06

x inside diameter : 2.0
x length mm : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 1.75
Tolerance mm : + 0.05
Check
tolerance mm : + 0.05

Rack travel in mm : 17.00 Tolerance mm : + 1.00

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

\*NW after s.o.d. : 16.50
Tolerance : + 0.20
Check
tolerance \*NW : + 0.30

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR **POSITION** Engine speed min-1: Setting point (P, R and H pump) : Uact V 3.100 CRT mm 13.00 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10 Check value (P, R and H pump) 1,700 Uact V CRT mm 6.15 Tolerance mm : +/- 0.25 Check : +/- 0.30 tolerance mm Setting point (M pump) Uact V 3.100 CRT mm 12.50 Tolerance mm : +/- 0.05 Check : +/- 0.10 tolerance mm Check value (amuq M) Uact V 1,700 CRT mm 5.50 Tolerance mm : +/- 0.25 Check : +/- 0.30 tolerance mm Stop position (P, R and H pump) Uact V : Value with deenergised adjusting magnet and control rod in stop position. CRT mm 0.75 : +/- 0.25 Tolerance mm Check : +/- 0.35 tolerance mm Stop position (M pump) Uact V 0,720 Tolerance Volt : + 0,065

Starting position (dimud M) Uact V 4,500 Tolerance Volt : + 0.115CRT mm 19,00 Tolerance mm : +- 0,80 ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps) Test with control rod in stop position Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : +/- 0.6 Check tolerance V : +/- 1.20 Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4 (C) INJECTION PUMP WITH POSITIONER TEST POINT V1 1000 Rated speed rpm : Uact V 3.250 Del. quantity cm3/1000 strokes : 35.5 Tolerance cm3/1000 strokes : +- 0.5 Check tolerance cm3/1000s. : + 1.2 Spreed Tolerance cm3/1000 strokes : 2.5 Check tolerance cm3/1000s. 3.0 FUEL DELIVERY CHARACTERISTICS Rated speed rpm 2500 Uact V 3,250 Del. quantity cm3/1000 strokes : 41.6 Check tolerance cm3/1000s.: +- 1.5 Spreed Check tolerance cm3/1000s.3.3

CRT mm

:

1,00

Rated speed rpm Uact V	: 500 : 3.250
Del. quantity cm3/1000 strokes Check tolerance	: 33.2
cm3/1000s. Spreed	: + 1.2
Check tolerance cm3/1000s.	: 3.0
TEST POINT L1	
Rated speed rpm	: 330
Uact V	: 2.200
Del. quantity cm3/1000 strokes Spreed Tolerance	: 7.3
cm3/1000 strokes	: 1.0
Check tolerance cm3/1000s.	: 1.8

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.000
Del. quantity		
cm3/1000 strokes	:	52.2
Check tolerance		
cm3/1000s.	: +	- 3.5
Spreed		
Check tolerance		
cm3/1000s.	:	5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 25.01.97 : ISO 4113

Combination No. : 0 400 836 030

Injection pump

Pump designation : PES6A95D410LS2542-1

EP type number : 0 410 896 912

Governor

Governer design. : RQV250...1100AB1177L

Governer no. : 0 420 212 162

Cust. part No. :

Customer-spec. information

Customer : MAN

Motor

: D2566 M/MF

Pover KW

: 177.0

#### TEST BENCH REQUIREMENTS

Iniet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar

: 173.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

B09

x inside diameter: 2.0 x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

Phasing

: 0-60-120-180-240

: -300

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.05 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 125.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: +- 3.0

Spreed

Tolerance

cm3/1000 strokes :

3.5

Check tolerance

cm3/1000s.

6.0

Rated speed rpm : 250

Rack travel in mm: 6.80

Tolerance mm : +- 0.10

Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  (B) SETTING OF INWITH GOVERNOR	: + 2.5 : + 5.0 : 3.5 : 5.0	Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  CONTROL LEVER control lever position degree tolerance degree	: 6.0 : 107.0
		T DATES COPES	
GUIDE SLEEVE TRAV Rated speed rpm guide sleeve	: 1200	RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 1145
travel mm Tolerance mm	: 9.70 : + 0.10	rack travel mm Rated speed rpm Tolerance 1/min	: 1195
Rated speed rpm guide sleeve travel mm Tolerance mm	: 250 : 1.15 : +- 0.05	rack travel mm Tolerance mm Rated speed rpm	
Rated speed rpm guide sleeve travel mm Tolerance mm	: 375 : 2.25 : + 0.15	LOW IDLE	
Rated speed rpm guide sleeve travel mm Tolerance mm	: 560 : 3.65 : + 0.15	control lever position degree tolerance degree	: +- 4.0
CUITAGE AL PROPERTIES	TTON	Setting point w/e	out bumper spring
GUIDE SLEEVE POSI	TION	Rated speed rpm	: 100
control lever position degree Rated speed rpm		CRT mm min. Testing:	: > 8.20
Rack travel in mm Tolerance mm		Rated speed rpm rack travel mm Tolerance mm	: 6.80
Rated speed rpm Aneroid pressure	Y AT FULL LOAD STOP : 1100	rack travel mm Rated speed rpm Tolerance 1/min	: 380
hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes		TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 12.05

Rated speed rpm rack travel mm Tolerance mm	:	500 12.10 0.10	
Start interlock		·	
Rated speed rpm Rated speed rpm	: >	100 170	
Check speed 1/min Check	:>	80	
speed 1/min	; <	190	

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure			
hPa	:		_
Rated speed rpm	:		500
Del. quantity			
cm3/1000 strokes	:		110.5
Tolerance			
cm3/1000 strokes	:	+-	3.0
Check tolerance			
cm3/1000S.	:	+-	5.5

Aneroid pressure			
hPa	:		-
Rated speed rpm	:		750
Del. quantity			
cm3/1000 strokes	:		114.5
Tolerance			
cm3/1000 strokes	:	+-	1.5
Check tolerance			
cm3/1000s.	:	+	4.0

### STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	15.70
Tolerance mm	: +-	0.20
Del. quantity		
cm3/1000 strokes	:	127.0
Tolerance		
cm3/1000 strokes	: +-	5.0
Check tolerance		
cm3/1000S.	: +-	8.0

Rated speed rpm : 250

Rack travel in mm : 6.80
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 11.5
Tolerance
cm3/1000 strokes : +- 2.5
Check tolerance
cm3/1000s. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000 strokes : 5.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 11.02.97 : ISO 4113

Combination No. : 0 400 874 250

Injection pump

Pump designation : PES4A95D32ORS2807 EP type number : 0 410 894 994

Governor

Governer design. : RSV375...1125A2C2178

: -7R

Governer no. : 0 420 233 279

Cust. part No. :

Customer-spec. information

Customer : VALMET

Motor

: 420 DS

Power KW

: 75.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

173.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.55
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-2-4-3

Phasing

: 0-90-180-270 : + 0.50

Tolerance Check

tolerance °NW

: +- 0.75

Start of delivery mark

Barrel no.

: 1

Beginning of delivery differende

and maximum rack

: 9.00

travel Tolerance mm

: +- 0.50

Difference ° CS : 5.00

### BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm: 11.25

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 87.5

B12

Tolerance cm3/1000 strokes : + 1.0	theck tolerance cm3/1000s. : +- 3.0 Spreed
Check tolerance	Tolerance cm3/1000 strokes : 3.5
cm3/1000s. : + 3.0	Check tolerance : 8.0
Spreed	‡
Tolerance cm3/1000 strokes : 3.5	CONTROL LEVER
Check tolerance cm3/1000s. : 8.0	control lever position degree : 101.0 tolerance degree : +- 4.0
Rated speed rpm: : 375	RATED SPEED  rack travel num : 10.20 Rated speed rpm : 1170
Rack travel in mm : 5.60 Tolerance mm : + 0.10	Tolerance 1/min : +- 5
Del. quantity cm3/1000 strokes : 21.0 Tolerance	rack travel mm : 4.00 Rated speed rpm : 1250 Tolerance 1/min : + 15
cm3/1000 strokes : +- 2.0 Check tolerance	† rack travel mm : 0.85
cm3/1000s. : +- 4.5 Spreed Tolerance	Tolerance mm : + 0.55 Rated speed rpm : 1410
cm3/1000 strokes : 5.5 Check tolerance	rack travel mm : 4.00
cm3/1000s. : 9.0	Rated speed rpm : 1260 Tolerance 1/min : +- 15 +
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
	LOW IDLE
GUIDE SLEEVE POSITION	control lever position degree : 75.0 tolerance degree : +- 4.0
control lever position degree : - 3 Rated speed rpm : 800	Setting point w/out bumper spring
Rack travel in mm : 0.50 Tolerance mm : + 0.20	Rated speed rpm : 375 rack travel mm : 5.10 Tolerance mm : + 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 100
Rated speed rpm : 1125	CRT mm min. : > 19.50
Aneroid pressure hPa : -	Testing:
Del. quantity cm3/1000 strokes : 87.5	Rated speed rpm : 375 rack travel mm : 5.60
Tolerance	Tolerance mm : + 0.10
cm3/1000 strokes : +- 1.0	rack travel mm : 2.00

Rated speed rpm Tolerance 1/min	
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1125 : 11.25 : + 0.05
Rated speed rpm	: 500
rack travel mm	: 11.65
Tolerance mm	: + 0.05
Rated speed rpm	: 750
rack travel mm	: 11.60
Tolerance mm	: + 0.05
Rated speed rpm	: 965
rack travel mm	: 11.35
Tolerance mm	: + 0.10

Aneroid pressure hPa	:	_
Rated speed rpm	:	750
Del. quantity cm3/1000 strokes Tolerance	•	87.5
cm3/1000 strokes	: +-	2.0
Check tolerance cm3/1000s.	: +	4.0

# STARTING FUEL DELIVERY

Rated speed rpm rack travel mm Tolerance mm Del. quantity	: 100 : 20.25 : + 0.75
cm3/1000 strokes	: 210.0
Tolerance cm3/1000 strokes Check tolerance	: ← 8.0
cm3/1000s.	: <b>←</b> 11.0

## LOW IDLE

Rated speed rpm	:	375
Rack travel in mm Tolerance mm	-	5.60 0.10

Del. quantity cm3/1000 strokes	•	21.0
Tolerance	•	£1.0
cm3/1000 strokes	: +-	2.0
Check tolerance		
cm3/1000s.	: +-	4.5
Spreed Tolerance		
cm3/1000 strokes Check tolerance	:	5.5
cm3/1000s.	:	9.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 30.01.97 Edition Test oil : ISO 4113

Combination No. : 0 402 646 970

Injection pump

Pump designation : PE6P120A320RS7248

: -10Y

EP type number : 0 412 626 902

Governor

Governer design. : RQV275...1150PA986

Governer no. : 0 421 813 920

Cust. part No. : 1248046/4

Customer-spec, information Customer : DAF : RS 180 L Motor Power KW : 180.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

: 40 temp. °C Tolerance °C

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 130 Tolerance L/h : + 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : x Length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25 Tolerance mm : ← 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 10.75 Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-

: 4

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.30

tolerance °NW : + 0.75

Barrel no. : 1

### BASIC SETTING

Rated speed rpm : 1000

B15

	<b>.</b>
Rack travel in mm : 10.75	Rated speed rpm : 315
Tolerance mm : +- 0.05	- Rateu speed rpm : 313 - guide sleeve
10 CC1 G17CC 1/MW	travel mm : 1.98
Del. quantity	Tolerance mm : + 0.25
cm3/1000 strokes : 147.5	-
	- Rated speed rpm : 365
Tolerance -	guide sleeve
cm3/1000 strokes : +- 1.0	travel mm : 2.52
Check tolerance	- Tolerance mm : + 0.25
cm3/1000s. : +- 4.0	Rated speed rpm : 450
CIID/ 10005 4.0	guide sleeve
Spreed -	travel mm : 3.07
-	Tolerance mm : + 0.25
Tolerance -	
cm3/1000 strokes : 5.0 -	Rated speed rpm : 1500
	guide sleeve
Check tolerance	travel mm : 11.50
cm3/1000s. : 9.0 -	Tolerance mm : +- 0.50
	GUIDE SLEEVE POSITION
Rated speed rpm : 275	
Rack travel in mm : 4.70	control lever
Tolerance mm : $\leftarrow$ 0.10	position degree : - 1
Del. quantity	Rated speed rpm : 1340
cm3/1000 strokes : 16.0 - Tolerance -	Book tenual in ma a 0.70
roterance	- Rack travel in mm : 9.70
cm3/1000 strokes · +- 3 0	Tolerance mm • +- 130
cm3/1000 strokes : +- 3.0 Check tolerance	Tolerance mm : +- 1.30
Check tolerance	Tolerance mm : +- 1.30
Check tolerance	Tolerance mm : +- 1.30
Check tolerance cm3/1000S. : +- 6.0 Spreed Tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1000
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1000 Aneroid pressure
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve travel mm : 8.25	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve travel mm : 8.25	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve travel mm : 8.25 Tolerance mm : + 0.20  Rated speed rpm : 275 guide sleeve	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve travel mm : 8.25 Tolerance mm : + 0.20  Rated speed rpm : 275 guide sleeve travel mm : 275 guide sleeve travel mm : 1.44	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 9.0  CONTROL LEVER
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve travel mm : 8.25 Tolerance mm : + 0.20  Rated speed rpm : 275 guide sleeve	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 9.0  CONTROL LEVER  control lever
Check tolerance cm3/1000s. : + 6.0  Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve travel mm : 8.25 Tolerance mm : + 0.20  Rated speed rpm : 275 guide sleeve travel mm : 1.44 Tolerance mm : + 0.15	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 9.0  CONTROL LEVER  control lever position degree : 120.0
Check tolerance cm3/1000s. : + 6.0  Spreed  Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve travel mm : 8.25 Tolerance mm : + 0.20  Rated speed rpm : 275 guide sleeve travel mm : 1.44 Tolerance mm : + 0.15  Rated speed rpm : 799	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 9.0  CONTROL LEVER  control lever
Check tolerance cm3/1000s. : + 6.0  Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve travel mm : 8.25 Tolerance mm : + 0.20  Rated speed rpm : 275 guide sleeve travel mm : 1.44 Tolerance mm : + 0.15  Rated speed rpm : 799 guide sleeve	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 9.0  CONTROL LEVER  control lever position degree : 120.0 tolerance degree : +- 4.0
Check tolerance cm3/1000s. : + 6.0  Spreed  Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1206 guide sleeve travel mm : 8.25 Tolerance mm : + 0.20  Rated speed rpm : 275 guide sleeve travel mm : 1.44 Tolerance mm : + 0.15  Rated speed rpm : 799	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 147.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 9.0  CONTROL LEVER  control lever position degree : 120.0

Rated speed rpm : 1182 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1280 Tolerance 1/min : + 15 rack travel mm 0.70 : + 0.70 Tolerance mm Rated speed rpm : 1450 LOW IDLE control lever position degree : 83.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 175 CRT mm min. : > 7.40 Testing: 275 Rated speed rpm 4.70 rack travel mm Tolerance mm : + 0.10Rated speed rpm : 340 TORQUE CONTROL Rated speed rpm : 1000 rack travel mm 10.75 Tolerance mm : +- 0.05 Rated speed rpm : 1150 rack travel mm : 10.75 Tolerance mm : **←** 0.10 ANEROID/ALTITUDE COMPENSATOR TEST SETTING 600 Rated speed rpm : Pressure hPa : 1000 10.75 rack travel mm : **←** 0.05 Tolerance mm Rated speed rpm 600 Pressure hPa rack travel mm : 9.50

Tolerance mm : + 0.10**MEASUREMENT** Rated speed rpm : 600 Pressure hPa 260 10.35 rack travel mm Tolerance mm : + 0.05: 190 Pressure hPa 9.90 rack travel mm : : + 0.10 Tolerance mm FUEL DELIVERY CHARACTERISTICS Aneroid pressure Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 121.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1006s. : +- 4.0

LOW IDLE Rated speed rpm : 275 Rack travel in mm : 4,70 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes : 16.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

**Fdition** : 26.02.97 Test oil : ISO 4113

Combination No. : 0 400 876 407

Injection pump

Pump designation : PES6A95D41DRS2835 EP type number : 0 410 896 895

Governor

Governer design. : RSV650...1050A8C2263

: -3L

Governer no. : 0 420 232 586

Cust. part No. : 87 800 684

Customer-spec. information : NH Customer : 7.5 L Motor Power KW : 138.0

### TEST BENCH REQUIREMENTS

Intet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar : **←** 1.5 Tolerance bar

: 1 680 750 008 Test lines

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 2.60 : +- 0.05 Tolerance mm Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Start of delivery blocking

Barrel no.

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 14.00 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 141.0

**B18** 

Tolerance cm3/1000 strokes : ← 1.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 3.0	cm3/1000s. : +- 3.0 Spreed
Spreed	Tolerance cm3/1000 strokes : 3.5
Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	CONTROL LEVER
1	control lever position degree : 91.0
Rated speed rpm : 650	tolerance degree : +- 4.0
Rack travel in mm : 5.50 Tolerance mm : + 0.10 Del. quantity	ASSEMBLY GOVERNOR SETTING
cm3/1000 strokes : 22.0 Tolerance	Rated speed rpm : 1092 rack travel mm : 11.80
cm3/1000 strokes : + 2.0 Check tolerance	Rated speed rpm : 1117
cm3/1000s. : + 3.5	Tolerance 1/min : +- 5
Spreed	rack travel mm : 4.00
cm3/1000 strokes : 3.5 Check tolerance	rack travel mm : 0.85 Tolerance mm : + 0.55
cm3/1000s. : 5.5	Rated speed rpm : 1250
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1093 rack travel mm : 11.80
+	Rated speed rpm : 1118
GUIDE SLEEVE POSITION	Tolerance 1/min : +- 5 rack travel mm : 4.00
	rack travel mm : 0.85
control lever position degree : -3 Rated speed rpm : 800	Tolerance mm : + 0.55 Rated speed rpm : 1250
Rack travel in mm: 0.50	Rated speed rpm : 1094
Tolerance mm : + 0.20	rack travel mm : 11.80
governor spring pre-tension	Rated speed rpm : 1119 Tolerance 1/min : ÷ 5
click setting x : 2.00	rack travel mm : 4.00
	rack travel mm : 0.85
FULL LOAD DELIVERY AT FULL LOAD STOP	Tolerance mm : + 0.55 Rated speed rpm : 1250
Rated speed rpm : 750 Aneroid pressure	
hPa : 800 + Del. quantity	Rated speed rpm : 1095 rack travel mm : 11.80
cm3/1000 strokes : 141.0	THE CTUVE CHANGE . II.OU

Rated speed rpm : Tolerance 1/min : H rack travel mm :	1120 5	† Tolerance mm	: + 0.10
	4.00 0.85	Rated speed rpm rack travel mm Tolerance mm	: 1050 : 12.50 : + 0.10
Tolerance mm : d Rated speed rpm :	► 0.55 1250	Rated speed rpm rack travel mm Tolerance mm	: 1050 : 12.80
rack travel mm : Rated speed rpm :	1096 11.80 1121	Rated speed rpm rack travel mm Tolerance mm	: 960 : 13.60
Tolerance 1/min : drack travel mm :	5 4.00	ANEROID/ALTITUDE	
	0.85 0.55 1250	+ COMPENSATOR TEST +	
		+ SETTING	
Rated speed rpm : rack travel mm : Rated speed rpm :	1097 11.80 1122	+ Rated speed rpm + Pressure nPa + rack travel mm + Tolerance mm	: 800
Tolerance 1/min : +	_	+ Rated speed rpm	: 500
	0.85 0.55 1250	Pressure hPa rack travel mm Tolerance mm	9.00 + 0.10
		+ MEASUREMENT +	
LOW IDLE		+ Rated speed rpm	: 500
control lever position degree : tolerance degree : t		Pressure hPa rack travel mm Tolerance mm	: 325 : 11.15 : + 0.20
Setting point w/out b		Pressure hPa rack travel mm Tolerance mm	: 13.45
rack travel mm :	650 5.00 0.10	<del>+</del>	
Testing:		FUEL DELIVERY CHA	RACTERISTICS
Rated speed rpm : rack travel mm : Tolerance mm : +	650 5.50 — 0.10	Aneroid pressure hPa Rated speed rpm	: – : 500
rack travel mm : Rated speed rpm :	2.00 780	Del. quantity cm3/1000 strokes Tolerance	: 77.0
Tolerance 1/min : +	==	cm3/1000 strokes Check tolerance	
TORQUE CONTROL Rated speed rpm : rack travel mm :	750 14.00	cm3/1000s.	: +- 4.5

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 Tolerance mm :  $\leftarrow 0.20$ 

Del. quantity

cm3/1000 strokes : 197.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. :  $\leftarrow$  13.0

## LOW IDLE

Rated speed rpm : 650

Rack travel in mm: 5.50
Tolerance mm: + 0.10
Del. quantity
cm3/1000 strokes: 22.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : + 3.5

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. : 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 07.04.97 Test oil : ISO 4113

Combination No. : 0 401 876 796

Injection pump

Pump designation: PE6P120A320LS3815

: -13

EP type number : 0 411 826 782

Governor

Governer design. : RSV675...1050POA820

: -12

Governer no. : 0 421 833 401

Cust. part No. : 0240745302

Customer-spec. information Customer : MB-NFZ Motor : OM441A Power KW : 162.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity min. L/h : 110
Tolerance L/h : + 10.0

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

: 208.5 bar

Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.65 Tolerance mm : +- 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 6-3-5-2-4-

: 1

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1080

Rack travel in mm : 10.00 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 146.0

4	- Check tolerance
Tolerance cm3/1000 strokes : + 1.0	- cm3/1000s. : +- 4.0 - Spreed - Tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000 strokes : 5.0 Check tolerance
Spreed	- cm3/1000s. : 9.0
Tolerance	
cm3/1000 strokes : 5.0	- CONTROL LEVER
Check tolerance cm3/1000s. : 9.0	control lever position degree : 93.0 tolerance degree : +- 4.0
1	
Rated speed rpm : 675	<u>-</u> <u>-</u>
Rack travel in mm: 3.40 Tolerance mm: + 0.10 Del. quantity	- LOW IDLE
cm3/1000 strokes : 17.0	<del>-</del> -
Tolerance + 3.0	control lever
Check tolerance	- position degree : 77.0 - tolerance degree : +- 4.0
cm3/1000S. : + 6.0 Spreed	- Cotting point when because
Tolerance	<ul> <li>Setting point w/out bumper spring</li> </ul>
cm3/1000 strokes : 8.0	- Rated speed rpm : 100
Check tolerance cm3/1000s. : 12.0	- CRT mm min. : > 19.50
7	- - Testing:
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	- - Rated speed rpm : 675
WITH GOVERNOON	- rack travel mm : 3.40
	- Tolerance mm : + 0.10
GUIDE SLEEVE POSITION	SET IDLE AUXILIARY SPRING
1	rack travel mm : 2.00
control lever position degree : -3	
Rated speed rpm : 800	TORQUE CONTROL
Rack travel in mm: 0.50	- Rated speed rpm : 1080 - rack travel mm : 10.00
Tolerance mm : + 0.20	- Tolerance mm : +- 0.05
FILL LOAD DELIVEDY AT FULL LOAD CTOD	- Rated speed rpm : 700 - rack travel mm : 11.30
FULL LOAD DELIVERY AT FULL LOAD STOP	- rack travel mm : 17.30 - Tolerance mm : +- 0.10
Rated speed rpm : 1080	-
Aneroid pressure	- Rated speed rpm : 925 - rack travel mm : 10.60
Del. quantity	Tolerance mm : + 0.10
cm3/1000 strokes : 146.0 +	-
cm3/1000 strokes : +- 1.0	-
1	

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	700
Del. quantity		
cm3/1000 strokes	:	177.0
Tolerance		
cm3/1000 strokes	: +	- 2.0
Check tolerance		
cm3/1000s.	: +	- 5.0
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Charle halamana		

Check tolerance cm3/1000s. : 12.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity		
cm3/1000 strokes		200.0
Tolerance		
cm3/1000 strokes	: +	- 10.0
Check tolerance		
cm3/1000s.	: +	- 14.0

## LOW IDLE

Rated speed rpm	:		675
Rack travel in mm Tolerance mm Del. quantity	:	+	3.40 0.10
cm3/1000 strokes Tolerance	:		17.0
cm3/1000 strokes Check tolerance	:	+	3.0
cm3/1000s. Spreed	:	+-	6.0
Tolerance cm3/1000 strokes	:		8.0
Check tolerance cm3/1000s.	:		12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97 Test oil : ISO 4113

Combination No. : 0 402 736 810

Injection pump

Pump designation : PES6P110A12ORS7213 EP type number : 0 412 716 804

Governor

Governer design. : RQV400...1250PA964

: -2K

Governer no. : 0 421 815 254

Cust. part No. : 3921777

Customer—spec. information Customer : CDC Motor : 6BTA-A Power KW : 141.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 120 Tolerance l/h : + 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0 Tolerance bar : + 1.0

Prestroke mm : 4.40Tolerance mm : +-0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

\*NW after s.o.d. : 6.00 Tolerance : +- 0.10

Check

tolerance 'NW : + 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 14.85   Tolerance mm : + 0.05   Cm3/1000 strokes : 163.0   Tolerance cm3/1000 strokes : + 1.0   Check tolerance cm3/1000 strokes : + 4.0   Spreed   Tolerance cm3/1000 strokes : + 1.0   Check tolerance cm3/1000s.   : + 4.0   Cm3/1000 strokes : 5.0   Check tolerance cm3/1000s.   : + 4.0   Cm3/1000s.   : 9.0   CoVTROL LEVER   Control lever position degree : + 4.0   CovTROL LEVER   Control lever position degree : + 4.0   CovTROL LEVER   Control lever position degree : + 4.0   CovTROL LEVER   Control lever position degree : + 4.0   CovTROL LEVER   Control lever position degree : + 4.0   CovTROL LEVER   Control lever position degree : + 4.0   CovTROL LEVER   Control lever position degree : + 4.0   CovTROL LEVER   CovTROL CovTROL CovTROL CovTROL CovTROL CovTROL CovTROL CovTROL CovTROL Cov		+ 1	Del. quantity	
Check tolerance cm3/1000s	Rack travel in ma: 14.85	<del> </del>	Tolerance	
Del. quantity cm3/1000 strokes : 163.0  Tolerance cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 4.0  Spreed  Tolerance cm3/1000s. : + 4.0  Spreed  Tolerance cm3/1000s. : + 4.0  Spreed  Tolerance cm3/1000s. : + 4.0  CONTROL LEVER  CONTROL CENTROL  CONTROL CENTR	Tolerance mm : +- 0.05			: +- 1.0
Tolerance		+	cm3/1000s.	: + 4.0
Check tolerance cm3/1000s. : + 4.0    Check tolerance cm3/1000s. : + 4.0   Control Lever control lever position degree : + 4.0   Check tolerance cm3/1000 strokes : 5.0   Control lever position degree : + 4.0   Check tolerance cm3/1000s. : 9.0   Control lever position degree : + 4.0   Check tolerance cm3/1000s. : 9.0   Control lever position degree : + 4.0   Contro			Tolerance	
Control Lever				: 5.0
Control Lever   Control Leve	Check tolerance		cm3/1000s.	: 9.0
Control lever		+		
cm3/1000 strokes : 5.0       position degree : 63.0         Check tolerance cm3/1000s. : 9.0       control lever position degree : 4.0         Rated speed rpm : 400       RATED SPEED rack travel mm : 13.80         Rack travel in mm : 5.50       Rated speed rpm : 1300         Tolerance mm : + 0.10       Tolerance 1/min : + 5         Del. quantity cm3/1000 strokes : 36.0       rack travel mm : 4.00         Rated speed rpm : 1475       rack travel mm : 4.00         Rated speed rpm : 1475       Tolerance 1/min : + 15         Check tolerance cm3/1000s strokes : + 3.0       rack travel mm : 0.50         Spreed       Tolerance 1/min : + 15         Tolerance mm : 0.50       Tolerance mm : 0.50         Tolerance cm3/1000s, : 12.0       Tolerance mm : 0.50         Rated speed rpm : 1600       Rated speed rpm : 1600         CB) SETTING OF INJECTION PUMP WITH GOVERNOR       Control lever position degree : 71.0 t.lerance degree : 4.0         GUIDE SLEEVE POSITION       control lever position degree : 4.0         Rated speed rpm : 1450       setting point w/out bumper spring         Rack travel in mm : 13.80       Setting point w/out bumper spring         Rated speed rpm : 1250       Rated speed rpm : 275         CRT mm min. : > 7.20         Rated speed rpm : 1250       Testing:	Spreed	Ţ,	CONTROL LEVER	
Check tolerance cm3/1000s.         9.0         control lever position degree : 119.0 tolerance degree : 4.0           Rated speed rpm : 400         RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1300 Tolerance mm : + 0.10 Tolerance mm : + 0.10 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance 1/min : + 15 Tolerance 1/min : + 1		•		
Check tolerance cm3/1000S.         : 9.0         control lever position degree : 119.0 tolerance degree : + 4.0           Rated speed rpm : 400         RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1300 Tolerance nmm : + 0.10 Tolerance 1/min : + 5           Tolerance nm : + 0.10 Del. quantity cm3/1000 strokes : 36.0 Tolerance cm3/1000 strokes : + 3.0 Tolerance 1/min : + 15         rack travel mm : 4.00 Rated speed rpm : 1475 Tolerance 1/min : + 15           Check tolerance cm3/1000S.         : + 5.0         rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1600           Check tolerance cm3/1000S.         : 8.0         Tolerance mm : + 0.50 Rated speed rpm : 1600           Check tolerance cm3/1000S.         : 12.0         LOW IDLE           CB) SETTING OF INJECTION PUMP WITH GOVERNOR         Control lever position degree : 71.0 tolerance degree : + 4.0           GUIDE SLEEVE POSITION Rated speed rpm : 1450         control lever position degree : 15.0 tolerance degree : + 4.0           Rack travel in mm : 13.80 Tolerance mm : + 1.30         Setting point w/out bumper spring           FULL LOAD DELIVERY AT FULL LOAD STOP         Rated speed rpm : 275           Rated speed rpm : 1250 Aneroid pressure hPa : 1200         Testing:	cm3/1000 strokes : 5.0			
Dosition degree		+		- 11U
Rated speed rpm : 400  Rated speed rpm : 400  Rack travel in mm : 5.50 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 36.0 Tolerance cm3/1000 strokes : + 5.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s, : + 5.0  Spreed Tolerance cm3/1000s, : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  Rated speed rpm : 1450 Rack travel in mm : 13.80 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250	CHIS/ 10000			: 119.0
Rack travel in mm : 5.50 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 36.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000 strokes : + 5.0 Tolerance dmm : + 0.50 Tolerance l/min : + 15 Check tolerance cm3/1000 strokes : + 5.0 Tolerance l/min : + 15 Check tolerance cm3/1000 strokes : + 5.0 Tolerance mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1600  Check tolerance cm3/1000s, : 12.0  CB) SETTING OF INJECTION PUMP WITH GOVERNOR  CONTrol lever position degree : 71.0 t.lerance degree : + 4.0  CONTROL lever position degree : 71.0 t.lerance degree : + 4.0  Rated speed rpm : 1450 Rack travel in mm : 13.80 Tolerance mm : + 1.30  Setting point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:				
Rack travel in mm : 5.50  Tolerance mm :	Rated speed rpm : 400			
Tolerance mm : + 0.10  Del. quantity  Cm3/1000 strokes : 36.0  Tolerance  Cm3/1000 strokes : + 3.0  Check tolerance  Cm3/1000s. : + 5.0  Spreed  Tolerance mm : + 0.50  Spreed  Tolerance mm : + 0.50  Tolerance 1/min : + 15  Tolerance 1/min : + 0.50  Rated speed rpm : 15  Tolerance 1/min : + 4.00  Rated speed rpm : 1600  Tolerance degree : 71.0  tolerance degree : + 4.0  Tolerance 1/min : + 0.50  Rated speed rpm : 1600  Tolerance 1/min : + 15  Tolerance 1/min : + 0.50  Rated speed rpm : 1600  Tolerance 1/min : + 0.50  Rated speed rpm : 1600  Tolerance 1/min : + 15  Tolerance 1/min : + 15  Tolerance 1/min : + 0.50  Rated speed rpm : 1600  Tolerance 1/min : + 15  Tolerance 1/min : + 0.50  Rated speed rpm : 1600  Tolerance 1/min : + 0.50  Rated speed rpm : 1600  Tolerance 1/min : + 0.50  Rated speed rpm : 1600  Tolerance 1/min : + 0.50  Rated speed rpm : 150  Tolerance 1/min : + 0.50  Rated speed rpm : 150  Tolerance 1/min : + 0.50  Rated speed rpm : 150  Tolerance 1/min : + 0.50  Rated speed rpm : 150  Tolerance 1/min : + 0.50  Rated speed rpm : 150  Tolerance 1/min : + 0.50  Rated speed rpm : 150  Tolerance 1/min : + 0.50  Tolerance 1/min : + 0.50  Tolerance 1/min : 157	Pack travel in mm . E EA			
Del. quantity cm3/1000 strokes : 36.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 5.0 Tolerance cm3/1000 strokes : 8.0 Tolerance cm3/1000 strokes : 8.0 Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION Rated speed rpm : 1450 Rack travel in mm : 13.80 Tolerance mm : + 1.30  Rated speed rpm : 275 FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1200  Rated speed rpm : 1250 Testing:				
Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 5.0 Foreed Tolerance cm3/1000s. : + 5.0 Tolerance mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1600 Tolerance cm3/1000s. : 12.0 Tolerance mm : + 0.50 Rated speed rpm : 1600 Tolerance masked speed rpm : 1600 Tolerance mm : + 0.50 Rated speed rpm : 1600 Tolerance mm : + 0.50 Rated speed rpm : 1600 Tolerance mm : + 0.50 Rated speed rpm : 1600 Tolerance mm : + 0.50 Rated speed rpm : 1600 Tolerance mm : + 0.50 Rated speed rpm : 1600 Tolerance degree : 71.0 Tolerance degree : + 4.0 Tolerance degree : + 4.0 Tolerance degree : + 4.0 Tolerance mm : + 1.30 Tolerance mm : + 1.30 Setting point w/out bumper spring Rated speed rpm : 275 Tolerance degree : + 2.0 Tolerance degree : + 2.0 Rated speed rpm : 1250 Aneroid pressure hPa : 1200 Tolerance degree : 1250 Tolerance degree :	Del. quantity	+		
Cm3/1000 strokes : + 3.0 Check tolerance Cm3/1000s. : + 5.0 Spreed Tolerance Cm3/1000 strokes : 8.0 Tolerance Cm3/1000 strokes : 8.0 Check tolerance Cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  CUIDE SLEEVE POSITION  Rated speed rpm : 1450 Rack travel in mm : 13.80 Tolerance mm : + 1.30  Rack travel in mm : 13.80 Tolerance mm : + 1.30  Rated speed rpm : 1250 Aneroid pressure hPa : 1200  Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1600  Tolerance mm : + 0.50 Rated speed rpm : 1600  Tolerance mm : + 0.50 Rated speed rpm : 1600  Tolerance mm : + 4.0  Tolerance mm : + 4.0  Control lever position degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:	cm3/1000 strokes : 36.0			
Check tolerance cm3/1000s. : + 5.0  Spreed Tolerance cm3/1000 strokes : 8.0  Check tolerance cm3/1000s. : 12.0   (B) SETTING OF INJECTION PUMP WITH GOVERNOR  Control lever position degree : 71.0 telerance degree : + 4.0  GUIDE SLEEVE POSITION  Rated speed rpm : 1450  Rack travel in mm : 13.80 Tolerance mm : + 1.30  Rated speed rpm : 275  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1200  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated travel mm : 0.50 Rated speed rpm : 1600  rack travel mm : 0.50 Tolerance mm : + 0.50  Rated speed rpm : 1000  rack travel mm : 0.50 Rated speed rpm : 1000  Tolerance mm : + 0.50  Rated speed rpm : 275.0  Testing:		1	The state of the s	
cm3/1000s. : + 5.0  Spreed  Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  Rated speed rpm : 1450  Rack travel in mm : 13.80 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1200  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1600  Rated travel mm : 0.50 Rated speed rpm : 1600  Rated speed rpm : 1600  Control lever position degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:		Ī	roterance r/man	; +- 15
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s : 12.0  LOW IDLE  LOW IDLE  Control lever position degree : 71.0 tolerance degree : 4.0  Control lever position degree : 72.0  Control lever position degree : 4.0  Control lever position degree : 275  Control lever position degree : 4.0  Control lever position degree : 72.0  Tolerance degree : 4.0  Control lever position degree : 72.0  Tolerance degree : 72.0  Testing:		+ ,	rack travel mm	: 0.50
Cm3/1000 strokes: 8.0 Check tolerance cm3/1000s.: 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  Control lever position degree: 71.0 tolerance degree: + 4.0  Control lever position degree: + 5.0  Tolerance degree: + 5.0  Tol				<del>-</del>
Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  Control lever position degree : 71.0 tilerance degree : + 4.0  Control lever position degree : 15.0 tolerance degree : + 4.0  Rated speed rpm : 13.80 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1200  LOW IDLE  Control lever position degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:	* - · · · · ·	† '	Rated speed rpm	: 1600
Cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  Control lever position degree : 71.0 telerance degree : + 4.0  Control lever position degree : 51.0 tolerance degree : + 4.0  Rack travel in mm : 13.80 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1200  LOW IDLE  Control lever position degree : + 4.0  Setting point w/out bumper spring  CRT mm min. : > 7.20  Testing:		Ī		
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  control lever position degree : 71.0 t.lerance degree : + 4.0  GUIDE SLEEVE POSITION  Rated speed rpm : 1450  Rack travel in mm : 13.80 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1200  control lever position degree : 71.0 t.lerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:		+		
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  control lever position degree : 71.0 t.lerance degree : + 4.0  GUIDE SLEEVE POSITION  Rated speed rpm : 1450  Rack travel in mm : 13.80 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1200  control lever position degree : 71.0 t.lerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:		<u>†</u> ;	IOW TOLE	
control lever position degree : 71.0 tilerance degree : + 4.0  GUIDE SLEEVE POSITION  Rated speed rpm : 1450  Rack travel in mm : 13.80 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1200  Control lever position degree : + 4.0  tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:		Ţ '	COM TOPE	
position degree : 71.0 tilerance degree : + 4.0  GUIDE SLEEVE POSITION  Rated speed rpm : 1450  Rack travel in mm : 13.80 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1200  position degree : 71.0 tilerance degree : + 4.0  Sching point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:	WITH GOVERNOR	† .	control lover	
GUIDE SLEEVE POSITION  Rated speed rpm : 1450  Rack travel in mm : 13.80  Tolerance mm : + 1.30  Rated speed rpm : 1250  Rated speed rpm : 1250  Aneroid pressure hPa : 1200  tolerance degree : + 4.0  control lever position degree : 15.0  tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:				: 71 N
Rated speed rpm : 1450 control lever position degree : 15.0 tolerance degree : + 4.0  Rack travel in mm : 13.80 Setting point w/out bumper spring  Rated speed rpm : 275  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250  Aneroid pressure hPa : 1200  Control lever position degree : 15.0 tolerance degree : + 4.0  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:				
Rated speed rpm : 1450  Rack travel in mm : 13.80  Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250  Aneroid pressure hPa : 1200  position degree : 15.0 tolerance degree : + 4.0  Setting point w/out bumper spring  CRT mm min. : > 7.20  Testing:	GUIDE SLEEVE POSITION	+	-	-
Rack travel in mm: 13.80 Tolerance mm: + 1.30  Setting point w/out bumper spring  Rated speed rpm: 275  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm: 1250 Aneroid pressure hPa: 1200  Rated travel in mm: 275  CRT mm min. : > 7.20  Testing:	Rated speed rpm : 1450	+ 1	position degree	
Tolerance mm : + 1.30  Setting point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Aneroid pressure hPa : 1200  Setting point w/out bumper spring  Rated speed rpm : 275  CRT mm min. : > 7.20  Testing:	Rack travel in mm : 13.80	<u>†</u> 1	tolerance degree	: +- 4.0
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250  Aneroid pressure  hPa : 1200  CRT mm min. :> 7.20  Testing:		<u>†</u> :	Setting point w/o	ut bumper spring
Rated speed rpm : 1250 Aneroid pressure hPa : 1200  CRT mm min. : > 7.20 Testing:			Rated speed rpm	: 275
Rated speed rpm : 1250 Aneroid pressure hPa : 1200 Testing:	FULL LOAD DELIVERY AT FULL LOA		CRT mm min.	:> 7.20
hPa : 1200		+		
		<u>†</u> 1	Testing:	
	. 1200	+ 1	Rated speed rpm	: 400

rack travel mm Tolerance mm	: 5.50 : ← 0.10
Rated speed rpm	: 423
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1250 : 14.85 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 800 : 13.10 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1250 : 1200 : 14.85 : + 0.05
MEASUREMENT	
Rated speed rpm	: 1250
Pressure hPa rack travel mm Tolerance mm	: 690 : 13.40 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 365 : 10.25 : + 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 290
Check speed 1/min Check	: > 80
speed 1/min	: < 300
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: 1200 : 800
Del. quantity cm3/1000 strokes	

Tolerance		
cm3/1000 strokes Check tolerance	: +-	3.0
cm3/1000s. Spreed	: +-	6.0
Tolerance cm3/1000 strokes		0.0
Check tolerance	:	8.0
cm3/1000s.	:	12.0
Aneroid pressure		
hPa Rated speed rpm	:	500
Del. quantity cm3/1000 strokes	:	97.5
Tolerance cm3/1000 strokes	: +-	2.0
Check tolerance cm3/1000s.	: +-	4.0
	-	
STARTING FUEL DEL	IVERY	
Rated speed rpm	:	100
rack travel mm Tolerance mm	: +-	12.50 0.50
Del. quantity cm3/1000 strokes	•	155.0
Tolerance cm3/1000 strokes		20.0
Check tolerance cm3/1000s.		25.0
CM37 (0000).	. '	25.0
LOW IDLE		
Rated speed rpm	:	400
Rack travel in mm Tolerance mm	: +-	5.50 0.10
Del. quantity cm3/1000 strokes	:	36.0
Tolerance cm3/1000 strokes	•	
Check tolerance		3.0
cm3/1000s. Spreed	: +-	5.0
Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000s.	:	12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97 Test oil : ISO 4113

Combination No. : 0 402 736 811

Injection pump

Pump designation : PES6P110A120RS7213 EP type number : 0 412 716 804

Governor

Governer design. : RQV400...1250PA964

: -3K

Governer no. : 0 421 815 255

Cust. part No. : 3921776

Customer—spec. information Customer : CDC Motor : 6BTA-A Power KW : 147.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 120 Tolerance l/h : + 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : 23.0 Tolerance bar : + 1.0

Prestroke mm : 4.40
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

\*NW after s.o.d. : 6.00 Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : + 0.23

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 14.85 Tolerance mm : + 0.05

Rack travel in mm: 5.60 Tolerance  $m_0$ :  $\leftarrow 0.10$ (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 1 CONTROL LEVER control lever 60.0 position degree : tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.8 Rated speed rpm : 1295 13.80 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1475 Tolerance 1/min : + 15 rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1600 LOW IDLE control lever position degree : 16.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 275 CRT mm min. :> 7.20Testing: 400 Rated speed rpm : rack travel mm : 5.60 Tolerance mm :  $\leftarrow$  0.10

Rated speed rpm : 423 TORQUE CONTROL Rated speed rpm : 1250 rack travel mm : 14.85 Tolerance mm : + 0.05 Rated speed rpm : 800 rack travel mm : 13.30 Tolerance mm : + 0.10 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 1250 Pressure hPa : 1200
rack travel mm : 14.85
Tolerance mm : + 0.05 Rated speed rpm : 1250 Pressure hPa : - rack travel mm : 8.40 Tolerance mm :  $\leftarrow$  0.20 Pressure hPa MEASUREMENT Rated speed rpm : 1250 Pressure hPa : 755 rack travel mm : 13.90
Tolerance mm : + 0.20 Pressure hPa : 410 rack travel mm : 10.65 Pressure hPa Tolerance mm :  $\leftarrow$  0.05 Start interlock Rated speed rpm : > 100 Rated speed rpm : < 290 Check speed 1/min : > 80 Check 300 speed 1/min : < FUEL DELIVERY CHARACTERISTICS Aneroid pressure 1200 hPa Rated speed rpm : 800

Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 159.5 : ← 3.0 : ← 6.0 : 8.0 : 12.0
Aneroid pressure hPa	
Rated speed rpm Del. quantity cm3/1000 strokes	: 500 : 92.0
Tolerance cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000s.	: + 4.0
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 100 : 12.40 : + 0.50 : 155.0
LOW IDLE	
Rack travel in mm Tolerance mm	: 5.60 : +- 0.10
End of test speci	fication sheet

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 23.04.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 736 812

Injection pump

Pump designation : PES6P110A120RS7214 EP type number : 0 412 716 805

Governor

Governer design. : RQV350...1200PA964

: -4K

: 0 421 815 256 Governer no.

Cust. part No. : 3921774

Customer-spec. information Customer : CDC Motor : 6CTA-A : 156.0 Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. L/h : 120 Tolerance L/h : + 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

: 4.40 Prestroke mm : +- 0.05 Tolerance mm Check

: **←** 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

: 0-60-120-180-240 Phasing

: -300

Start of delivery blocking

\*NW after s.o.d. : 5.50 Tolerance :  $\leftarrow$  0.10

Check

: +- 0.23 tolerance °NW

: 1 Barrel no.

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm: 12.35

Tolerance mm : +- 0.05 Testing: Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rack travel in mm : 5.50 Tolerance mn : + 0.10 Rated speed rpm : 423 (B) SETTING OF INJECTION PUMP TORQUE CONTROL WITH GOVERNOR Rated speed rpm : 1200 rack travel mm : 12.35 Tolerance mm : + 0.05 GUIDE SLEEVE POSITION Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20 control lever position degree : -1
Rated speed rpm : 1260 Rated speed rpm : 550 rack travel mm : 11.00 Tolerance mm : + 0.20 Rack travel in mm: 16.50 Tolerance mm : + 1.30 ANEROID/ALTITUDE COMPENSATOR TEST CONTROL LEVER control lever SETTING position degree : 119.0 Rated speed rpm : 1200 tolerance degree : +- 4.0 Pressure hPa : 1200 rack travel mm : 12.35 Tolerance mm : + 0.05 RATED SPEED rack travel mm : 11.30
Rated speed rpm : 1250 Rated speed rpm : 1200 Tolerance 1/min : + 5 Pressure hPa : rack travel mm : 7.90
Tolerance mm : +- 0.20 rack travel mm : 4.00 Rated speed rpm : 1380 Tolerance 1/min : + 15 MEASUREMENT Rated speed rpm : 1200 Rated speed rpm : 1500 Pressure hPa : 575 rack travel mm : 11.40 rack travel mm : 11.40
Tolerance mm : + 0.20 Pressure hPa : 225
rack travel mm : 8.95
Tolerance mm : + 0.05 LOW IDLE control lever position degree : 65.0 Start interlock tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm :> 100 Rated speed rpm : < 290 Rated speed rom : 275 Check speed 1/min :> 80 CRT mm min. :> 7.20

Check speed 1/min	: < 300	
FUEL DELIVERY CHA	RACTERISTICS	
Aneroid pressure		
hPa	: 1200	
Rated speed rpm	: 650	
Del. quantity cm3/1000 strokes	: 154.0	
Tolerance cm3/1000 strokes	: <b>←</b> 3.0	
Check tolerance cm3/1000s.	: ← 6.0	
Spreed Tolerance		
cm3/1000 strokes Check tolerance	: 8.0	
cm3/1000s.	: 12.0	
Aneroid pressure		
hPa	· -	
Rated speed rpm Del. quantity	: 500	
cm3/1000 strokes	: 88.5	
Tolerance		
cm3/1000 strokes	: +- 2.0	
Check tolerance cm3/1000s.	: +- 4.0	
STARTING FUEL DEL	IVERY	
Del. quantity		
cm3/1000 strokes	: 155.0	
Tolerance	20 0	
cm3/1000 strokes Check tolerance	<del>- 20.0</del>	
cm3/1000s.	: + 25.0	
LOW IDLE		
Rack travel in mm Tolerance mm	: 5.50 : ← 0.10	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 23.04.97 Edition Test oil : ISO 4113

Combination No. : 0 402 736 856

Injection pump

Pump designation : PES6P110A120RS7213 EP type number : 0 412 716 804

Governor

Governer design. : RQV350...1250PA964

: -26K

: 0 421 815 426 Governer no.

Cust. part No. : 3282240

Customer-spec. information Customer : CUMMINS : 6BTAA Motor Power KW : 172.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 093

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : **←** 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.40
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm: + 1.50

Firing order : 1-5-3-6-2-

: 4

: 0-60-120-180-240 Phasing

: -300

Start of delivery blocking

\*NW after s.o.d. : 6.00 Tolerance : + 0.10

Check

tolerance \*NW : +- 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 15.10

Tolerance mm :  $\leftarrow$  0.05

Rated speed rpm : 350

	4	<del> </del>	
Rack travel in mm	m: 5.40 -	Rack travel in mm : 9.00	
Tolerance mm	: <del></del> 0.10	Tolerance mm : +- 3.00	
Del. quantity	-	}	
cm3/1000 strokes	: 22.5	<b>}</b>	
Tolerance	-		
cm3/1000 strokes	: <del>←</del> 3.0	CONTROL LEVER	
Check tolerance		+	
cm3/1000s.	: <del> 5.0</del>	control lever	
Spreed	-	position degree : 123.0	
Tolerance	7.0	tolerance degree : + 4.0	
cm3/1000 strokes	: 7.0	-	
Check tolerance	. 44.0	RATED SPEED	
cm3/1000s.	: 11.0	rack travel mm : 15.30	
		Rated speed rpm : 1325 Tolerance 1/min : +- 5	
(D) SETTING OF IN	ALIECTION DIMO	i Toterance 1/min : +- 3	
(B) SETTING OF IN	ARECATOR LOWE	rack travel mm : 4.00	
MITH GOVEWNOW		Rated speed rpm : 1480	
· · · · · · · · · · · · · · · · · · ·		Tolerance 1/min : +- 15	
GUIDE SLEEVE TRAVEL			
00101 000111 11011	-	rack travel mm : 0.50	
Rated speed rpm	: 1346	Tolerance mm : + 0.50	
guide sleeve	4	Rated speed rpm : 1600	
travel mm	: 8.44	· ' '	
Tolerance mm	: <del>+-</del> 0.25		
	-	-	
Rated speed rpm	: 350		
guide sleeve	-	LOW IDLE	
travel mm	: 1.94		
Tolerance mm	: + 0.25		
	1	control lever	
Rated speed rpm	: 840	position degree : 70.0	
guide sleeve	, 50	tolerance degree : +- 4.0	
travel mm	: 4.58	Catting point/a.d burner appin	
Tolerance mm	: ← 0.25	Setting point w/out bumper spring	
Dated speed spm	: 403	Rated speed rpm : 250	
Rated speed rpm guide sleeve	: 403	L Rateu speed i piii . 250	
travel mm	: 2.53	CRT mm min. :> 7.20	
Tolerance mm	: +- 0.25	CICT MAIN DIFFITE	
TOCET GITCE TIME	0.25	- Testing:	
Rated speed rpm	: 450		
guide sleeve		Rated speed rpm : 350	
travel mm	: 2.76	- rack travel mm : 5.40	
Tolerance mm	: +- 0.25	- Tolerance mm : +- 0.10	
	+	-	
Rated speed rpm	: 1620	- Rated speed rpm : 375	
guide sleeve	+	-	
travel mm	: 11.50		
Tolerance mm	: + 0.50 <del> </del>	TORQUE CONTROL	
	+	Rated speed rpm : 1100	
		rack travel mm : 15.10	
GUIDE SLEEVE POSI	LITON	- Tolerance mm : +- 0.05	
	7	- - Rated speed rpm : 800	
control lever	1	- rack travel mm : 13.70	
position degree	· - 1	- Tolerance mm : +- 0.10	
Rated speed rpm		-	
waten sheen thus	1 1 1 1 1	- Rated speed rnm : 1250	

Rated speed rpm : 1250

	13.70	Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0
ANEROID/ALTITUDE COMPENSATOR TEST SETTING		Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 94.0 Tolerance
Rated speed rpm : Pressure hPa : rack travel mm : Tolerance mm :	1250 1800 16.30 ← 0.10	cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0
Rated speed rpm : Pressure hPa : rack travel mm : Tolerance mm :  MEASUREMENT  Rated speed rpm : Pressure hPa : rack travel mm : Tolerance mm :	9.05 ← 0.20  1250  450 10.75  ← 0.20	STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 13.50 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : 162.0 Tolerance cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s. : + 24.0
Pressure hPa : rack travel mm : Tolerance mm : +	14.35	LOW IDLE
Start interlock  Rated speed rpm : > Rated speed rpm : <  Check speed 1/min : > Check speed 1/min : <	> 80	Rated speed rpm : 350  Rack travel in mm : 5.40 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 22.5 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 5.0 Spreed
FUEL DELIVERY CHARACT  Aneroid pressure hPa : Rated speed rpm :	1800 800	Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0
Del. quantity cm3/1000 strokes : Tolerance cm3/1000 strokes : + Check tolerance	157.0	End of test specification sheet

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 23.04.97 Test oil : ISO 4113

Combination No. : 0 402 736 858

Injection pump

Pump designation : PES6P110A120RS7214 EP type number : 0 412 716 805

Governor

Governer design. : RQV350...1200PA964

: -28K

Governer no. : 0 421 815 428

Cust. part No. : 3282464

Customer—spec. information Customer : CUMMINS Motor : 6CTA-A Power KW : 156.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. L/h : 120 Tolerance L/h : + 10.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : 23.0 Tolerance bar : + 1.0

Prestroke mm : 4.40 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

\*NW after s.o.d. : 5.50 Tolerance : + 0.10

Check

tolerance °NW : +- 0.23

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 12.35

Tolerance mm :  $\leftarrow$  0.05 Rack travel in mm: 5.50 Tolerance mm : + 0.10 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 1200 guide sleeve : 9.10 travel mm travel mm : 9.10
Tolerance mm : + 0.10 Rated speed rpm : 350 guide sleeve travel mm : 1.80
Tolerance mm : + 0.20 : 1.80 Rated speed rpm : 450 quide sleeve : 3.30 travel mm Tolerance mm : + 0.20 Rated speed rpm : 700 guide sleeve : 6.10 travel mm : +- 0.20 Tolerance mm Rated speed rpm : 1400 guide sleeve
travel mm : 10.90
Tolerance mm : + 0.20 GUIDE SLEEVE POSITION control lever position degree : - 1 Rated speed rpm : 1330 Rack travel in mm: 16.50 Tolerance mm :  $\leftarrow$  1.30 CONTROL LEVER control lever position degree : 119.0 tolerance degree : + 4.0 RATED SPEED

rack travel mm : 11.30 Rated speed rpm : 1250 Tolerance 1/min : +- 5 rack travel mm : 4.00 Rated speed rpm : 1380 Toleranc 1/min : + 15 Rated speed rpm : 1500 LOW IDLE control lever position degree : 65.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 275 CRT mm min. :> 7.20Testing: Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : +- 0.10 Rated speed rpm : 423 TORQUE CONTROL Rated speed rpm : 1200 rack travel mm : 12.35 Tolerance mm : + 0.05 Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20 Rated speed rpm : 550 rack travel mm : 11.00 Tolerance mm : + 0.20 ANEROID/ALTITUDE COMPENSATOR TEST SETTING

Rated speed rpm : 1200 Pressure hPa : 1200 rack travel mm : 12.35

Tolerance mm : **←** 0.05 Rated speed rpm 1200 Pressure hPa 7.90 rack travel mm Tolerance mm : **+-** 0.20 **MEASUREMENT** 1200 Rated speed rpm Pressure hPa 575 rack travel mm 11.40 Tolerance mm : + 0.20 225 Pressure hPa 8.95 rack travel mm : + 0.05Tolerance mm Start interlock Rated speed rpm :> 100 Rated speed rpm : < 290 Check speed 1/min 80 ; > Check 300 speed 1/min : < FUEL DELIVERY CHARACTERISTICS Aneroid pressure 1200 hPa Rated speed rpm 650 Del. quantity cm3/1000 strokes : 154.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000S.6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance 12.0 cm3/1000s. Aneroid pressure hPa 500 Rated speed rpm Del. quantity cm3/1000 strokes : 91.5 Tolerance 2.0 cm3/1000 strokes : +-Check tolerance cm3/1000S.: +-4.0

STARTING FUEL DELIVERY

Del. quantity

cm3/1000 strokes : 155.0

Tolerance

cm3/1000 strokes : +- 20.0

Check tolerance

cm3/1000s. : +- 25.0

LOW IDLE

Rack travel in mm : 5.50 Tolerance mm : + 0.10

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 23.04.97 Test oil : ISO 4113

Combination No. : 0 402 736 860

Injection pump

Pump designation : PES6P110A120RS7214 EP type number : 0 402 716 805

Governor

Governer design. : RQV350...1200PA964

: -29K

Governer no. : 0 421 815 430

Cust. part No. : 3282466

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 120 Tolerance l/h : + 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5 Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 23.0 Tolerance bar : + 1.0

Prestroke mm : 4.40 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 4.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

\*NW after s.o.d. : 5.50 Tolerance : +- 0.10

Check

tolerance °NW : + 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 14.55

Tolerance mm : + 0.05 Rack travel in mm : 5.40 Tolerance mm : + 0.10 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : -1 Rated speed rpm : 1330 Rack travel in mm: 16.50 Tolerance mm : + 1.30 CONTROL LEVER control lever position degree : 66.0 tolerance degree : + 4.0 control lever position degree : 119.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.50
Rated speed rpm : 1250
Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1410
Tolerance 1/min : + 15 Rated speed rpm : 1500 LOW IDLE control lever position degree : 65.0 tolerance degree : + 4.0

control lever position degree : 15.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 275 CRT mm min. : > 7.20 Testing: Rated speed rpm : 350 rack travel mm : 5.40 Tolerance mm :  $\leftarrow 0.10$ Rated speed rpm : 425 TORQUE CONTROL Rated speed rpm : 1200 rack travel mm : 14.55 Tolerance mm : ± 0.05 Rated speed rpm : 650 rack travel mm : 11.50 Tolerance mm : + 0.20 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 1200 Pressure hPa : 1200
rack travel mm : 14.55
Tolerance mm : + 0.05 Rated speed rpm : 1200 Pressure hPa : rack travel mm : 7.70
Tolerance mm : + 0.20 MEASUREMENT Rated speed rpm : 1200 Pressure hPa : 860 rack travel mm : 13.40 Tolerance mm : + 0.20 Pressure hPa : 320 rack travel mm : 9.45 Tolerance mm :  $\leftarrow 0.05$ 

Start interlock

Rated speed rpm : > 100 Rated speed rpm : < 290

Check

speed 1/min :> 80

Check

speed 1/min : < 300

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 650

Del. quantity

cm3/1000 strokes : 167.5

Tolerance

cm3/1000 strokes : + 3.0

Check tolerance

cm3/1000s. : +- 6.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 91.5

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.0

# STARTING FUEL DELIVERY

Del. quantity

cm3/1000 strokes : 155.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

cm3/1000s. :  $\leftarrow$  25.0

#### LOW IDLE

Rack travel in mm : 5.40Tolerance mm :  $\leftarrow 0.10$ 

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 28.04.97 Test oil : ISO 4113

Combination No. : 0 400 463 155

Injection pump

Pump designation : PES3A80D410/3RS1350

EP type number : 0 410 483 023

Governor

Governer design. : RSV325...1175A8C2223

: -4L

Governer no. : 0 420 232 620

Cust. part No. :

Customer—spec. information Customer : KHD

Motor : F3L912 \*
Power KW : 38.0

#### TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 1.95
Tolerance mm : + 0.05
Check

tolerance mm  $: \leftarrow 0.10$ 

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240 Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1175

Rack travel in mm : 10.15 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 56.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  0.5

Check tolerance

cm3/1000s. : + 2.0

Spreed	- Tolerance - cm3/1000 strokes : 2.5
Tolerance cm3/1000 strokes : 2.5	- Check tolerance - cm3/1000s. : 4.0
Check tolerance cm3/1000s. : 4.0	- 
	- CONTROL LEVER
Patert annual man 725	- control lever
Rated speed rpm : 325	- position degree : 106.0 - tolerance degree : +- 4.0
Rack travel in mm: 6.00	•
Tolerance mm : + 0.10	- RATED SPEED
Del. quantity + cm3/1000 strokes : 11.0 +	- rack travel mm : 9.10 - Rated speed rpm : 1220
Tolerance	- Rated speed rpm : 1220 - Tolerance 1/min : +- 5
cm3/1000 strokes : + 1.5	-
Check tolerance	- rack travel mm : 4.00
cm3/1000s. : + 3.5	- Rated speed rpm : 1260
Spreed	- Tolerance 1/min : + 15
Tolerance + cm3/1000 strokes : 4.0 +	- - rack travel mm : 0.85
Check tolerance	- Tolerance mm : + 0.55
cm3/1000s. : 6.0	- Rated speed rpm : 1425
+	
(B) SETTING OF INJECTION PUMP	- rack travel mm : 4.00 - Rated speed rpm : 1265
WITH GOVERNOR	- Rated speed rpm : 1265 - Tolerance 1/min : +- 15
WITH GOVERNOR	
+	-
CHIEF CLEENE DOCUTION	- -
GUIDE SLEEVE POSITION	
GUIDE SLEEVE POSITION	LOW IDLE
control lever	• •
control lever position degree : -3	- - control lever
control lever	control lever 70.0
control lever position degree : -3 Rated speed rpm : 800	- - control lever
control lever position degree : -3	control lever 70.0
control lever position degree : -3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring
control lever position degree : -3 Rated speed rpm : 800  Rack travel in mm : 0.50	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring Rated speed rpm : 325 rack travel mm : 5.50
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring Rated speed rpm : 325
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 5.50 Tolerance mm : + 0.10
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.00	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring Rated speed rpm : 325 rack travel mm : 5.50
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 5.50 Tolerance mm : + 0.10
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.00	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 5.50 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 800 Aneroid pressure	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 5.50 Tolerance mm : + 0.10  Rated speed rpm : 100
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 800 Aneroid pressure hPa : -	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 5.50 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. :> 19.50  Testing:
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 800 Aneroid pressure hPa : - Del. quantity	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 5.50 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. :> 19.50  Testing:  Rated speed rpm : 325
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 800 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 5.50 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. :> 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 6.00
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 800 Aneroid pressure hPa : - Del. quantity	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 5.50 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 6.00 Tolerance mm : + 0.10
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 800 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0 Tolerance cm3/1000 strokes : + 0.5 Check tolerance	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 5.50 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. :> 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 6.00 Tolerance mm : + 0.10  rack travel mm : 2.00
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 800 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0 Tolerance cm3/1000 strokes : + 0.5	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 5.50 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 6.00 Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1175 rack travel mm : 10.15 Tolerance mm :  $\leftarrow$  0.05

Rated speed rpm : 500 rack travel mm : 10.95 Tolerance mm : 4 0.05

Rated speed rpm : 1050 rack travel mm : 10.50 Tolerance mm : +--- 0.10

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 1175 Del. quantity

cm3/1000 strokes : 58.0

Tolerance

cm3/1000 strokes : +- 1.5

Check tolerance

cm3/1000s. : +- 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 17.80 Tolerance mm : + 0.15

Del. quantity

cm3/1000 strokes : 110.0

Tolerance cm3/1000 strokes : +- 7.5

Check tolerance

cm3/1000s. : ← 10.0

#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.00 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 11.0

Tolerance

cm3/1000 strokes : + 1.5

Check tolerance

cm3/1000s. : + 3.5

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. : 6.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Refer to Service Info for test and adjustment instructions. See microcard(s) W400/... : 28.04.97 Edition : ISO 4113 Test oil Combination No. : 0 400 674 048 Injection pump Pump designation : PE4A95D42ORS2662-1 EP type number : 0 410 694 994 Governor Governer design. : RSV350...1100A8C2222 : -2R Governer no. : 0 420 233 339

Customer : HANOMAG
Motor : D944T
Power KW : 97.0

TEST BENCH REQUIREMENTS

Inlet line : 1.1

Test oil inlet temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : D AUE REN TL.

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

tolerance mm : + 0.10

Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-2-4-3

Phasing : 0-90-180-270 Tolerance : + 0.50

Check : + U.:

tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.80 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 130.0

Tolerance cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 3.0

Spreed	Tolerance cm3/1000 strokes : 3.5
Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 8.0
Check tolerance cm3/1000s. : 8.0	
	CONTROL LEVER
Rated speed rpm : 350	<pre>control lever position degree : 100.0 tolerance degree : +- 4.0</pre>
Rack travel in mm: 6.30 Tolerance mm: + 0.10	RATED SPEED
Del. quantity + cm3/1000 strokes : 13.0 +	rack travel mm : 11.80 Rated speed rpm : 1145
Tolerance cm3/1000 strokes : + 2.0	Tolerance 1/min : +- 5
Check tolerance cm3/1000s. : +- 4.5 +- Spreed	rack travel mm : 4.00 Rated speed rpm : 1200 Tolerance 1/min : +- 15
Tolerance + cm3/1000 strokes : 5.5 + cm3/1000 strokes : 5.5	rack travel mm : 0.85 Tolerance mm : + 0.55
Check tolerance cm3/1000s. : 9.0	Tolerance mm : +- 0.55 Rated speed rpm : 1300
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1220 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION +	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 68.0 tolerance degree : + 4.0
Rack travel in mm: 0.50 + Tolerance mm: + 0.20 +	Setting point w/out bumper spring
governor spring pre-tension click setting x : 3.25	Rated speed rpm : 350 rack travel mm : 5.80 Tolerance mm : +- 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 100
Rated speed rpm : 1100 + Aneroid pressure	CRT mm min. : > 19.50 Testing:
hPa : - + Del. quantity cm3/1000 strokes : 130.0 + Tolerance	Rated speed rpm : 350 rack travel mm : 6.30 Tolerance mm : + 0.10
cm3/1000 strokes : + 1.0 + Check tolerance	rack travel mm : 2.00
cm3/1000s. $:+$ 3.0	1 4 0 N C 1 4 C C 1811 . C 1 4 C

TORQUE CONTROL

1100 Rated speed rpm 12.80 rack travel mm : **←** 0.05 Tolerance mm

Rated speed rpm : 500 13.30 rack travel mm : **←** 0.05 Tolerance mm

900 Rated speed rpm rack travel mm 13.00 : + 0.10 Tolerance mm

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm 500 Del. quantity

cm3/1000 strokes : 131.5

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s.4.0

## STARTING FUEL DELIVERY

100 Rated speed rpm 20.25 rack travel mm : : **←** 0.75 Tolerance mm Del. quantity

cm3/1000 strokes : 130.0

Tolerance cm3/1000 strokes :  $\leftarrow$  7.5

Check tolerance

: + 10.0 cm3/1000s.

#### LOW IDLE

350 Rated speed rpm :

6.30 Rack travel in mm : Tolerance mm :  $\leftarrow$  0.10

Del. quantity

cm3/1000 strokes : 13.0

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

: **←** 4.5 cm3/1000s.

Spreed

Tolerance

5.5 cm3/1000 strokes :

Check tolerance

cm3/1000s. 9.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97 Test oil : ISO 4113

Combination No. : 0 400 674 049

Injection pump

Pump designation : PE4A95D42ORS2662-1 EP type number : 0 410 694 994

Governor

Governer design. : RSV350...1100A8C2222

: -3R

Governer no. : 0 420 233 340

Cust. part No. : 4404 084 M91

Customer—spec. information Customer : HANOMAG Motor : D944T Power KW : 97.0

## TEST BENCH REQUIREMENTS

Inlet line : 1.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : D AUE REN TL.

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant. per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.20
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-2-4-3

Phasing : 0-90-180-270

Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 350

Rack travel in mm: 6.30
Tolerance mm: + 0.10
Del. quantity
cm3/1000 strokes: 13.0

Tolerance cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed Tolerance

cm3/1000 strokes : 5.5

Check tolerance cm3/1000s. : 9.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm: 0.50 Tolerance mm : + 0.20 governor spring pre-tension click setting x : 4.00CONTROL LEVER control lever position degree : 103.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 10.25 Rated speed rpm : 1145 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1200 Tolerance 1/min : + 15 rack travel mm : 0.85
Tolerance mm : + 0.55 Rated speed rpm : 1300 rack travel mm : 4.00 Rated speed rpm : 1225 Tolerance 1/min : + 15 LOW IDLE control lever

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350 rack travel mm : 5.80 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 350 rack travel mm : 6.30 Tolerance mm : + 0.10

rack travel mm : 2.00 Rated speed rpm : 500 Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 500 rack travel mm : 11.70 Tolerance mm : + 0.05

Rated speed rpm : 950 rack travel mm : 11.50 Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : Rated speed rpm : 500
Del. quantity

cm3/1000 strokes : 105.5 Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75 Del. quantity

cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes : + 7.5

Check tolerance

cm3/1000s. :  $\div$  10.0

# LOW IDLE

Rated speed rpm	:	350	
	: +-	6.30 0.10	
Del. quantity cm3/1000 strokes Tolerance	:	13.0	
cm3/1000 strokes Check tolerance	: +-	2.0	
cm3/1000s. Spreed	: +-	4.5	
Tolerance cm3/1000 strokes	:	5.5	
Check tolerance cm3/1000s.	:	9.0	

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

: 21.01.94 Edition : ISO 4113 Test oil

Combination No. : 0 401 846 849

Injection pump

Pump designation : PE6P120A320RS3196 EP type number : 0 411 826 763

Governor

Governer design. : RQV200...1100PA729

Governer no. : 0 421 813 470

Cust. part No. :

Customer—spec. information Customer : SCANIA : DS9 06 Motor

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration

damper

(RoBo diaphragm): 4.2

Test oil inlet

40 temp. °C Tolerance °C 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

208.5 bar : + 1.5 Tolerance bar

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 600 x length mm

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 5.05 Tolerance mm : + - 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

: 1-5-3-6-2-Firing order

: 4

: 0-60-120-180-240 Phasing

: -300

: +- 0.50 Tolerance

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

: + 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 225

1	
Rack travel in mm: 5.00 Tolerance mm: + 0.10 Del. quantity	LOW IDLE
<pre>cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : +- 2.0 Check tolerance cm3/1000s. : +- 4.0 Spreed</pre>	control lever position degree : 64.0 tolerance degree : + 4.0
Tolerance cm3/1000 strokes : 3.0 Check tolerance cm3/1000s. : 6.0	control lever position degree : 9.0 tolerance degree : + 4.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Setting point w/out bumper spring Rated speed rpm : 100 CRT mm min. : > 6.20
GUIDE SLEEVE POSITION	Testing:
control lever position degree : -1 Rated speed rpm : 1120	Rated speed rpm : 225 rack travel mm : 5.00 Tolerance mm : + 0.10 rack travel mm : 2.00
Rack travel in mm : 16.50 Tolerance mm : + 1.30	Rated speed rpm : 330 Tolerance 1/min : + 30
Ŧ	TORQUE CONTROL
CONTROL LEVER  control lever  position degree : 59.0  tolerance degree : + 4.0	Rated speed rpm : 1100 rack travel mm : 10.45 Tolerance mm : +- 0.05
control lever position degree : 114.0 tolerance degree : + 4.0	FUEL DELIVERY CHARACTERISTICS
RATED SPEED rack travel mm : 9.40 Rated speed rpm : 1145 Tolerance 1/min : + 5 Check speed 1/min : + 15  rack travel mm : 4.00 Rated speed rpm : 1265 Tolerance 1/min : + 15 Check	Aneroid pressure hPa : - Rated speed rpm : 1100 Del. quantity cm3/1000 strokes : 149.0 Tolerance cm3/1000 strokes : + 4.0 Check tolerance cm3/1000s. : + 6.0
speed 1/min : + 20	STARTING FUEL DELIVERY
rack travel mm : 0.50 + Tolerance mm : + 0.50 + Rated speed rpm : 1350 + Tolerance mm :	Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity cm3/1000 strokes : 355.0 Tolerance cm3/1000 strokes : +- 20.0 Check tolerance

cm3/1000s. : **←** 24.0

## LOW IDLE

Rated speed rpm : 225

Rack travel in mm: 5.00 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 3.0 Check tolerance : 6.0 cm3/1000S.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 04,10.94

Test oil

: ISO 4113

Combination No. : 0 401 846 950

Injection pump

Pump designation: PE6P110A720RS3289

EP type number : 0 411 816 781

Governor

Governer design. : RQV200...1100PA555

: -5

Governer no.

: 0 421 813 943

Cust. part No. : 1333234

Customer-spec. information

Customer

: SCANIA

Motor

: DS11 63A

#### TEST BENCH REQUIREMENTS

Inlet line

: 4.2

Vibration

damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5

Test nozzle holde

assembly

: 1 688 901 104

Opening pressure

bar

251.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter:

2.0

x length mm

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm Tolerance mm

3.35 : **←** 0.05

Check

: **←** 0.10 tolerance mm

Rack travel in mm: 10.50

Tolerance mm : + 1.50

Firing order

: 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : **←** 0.50

Check

tolerance °NW : **←** 0.75

Start of delivery mark

Tolerance

: + 0.50

Check

tolerance "NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm :

325

Rack travel in mm :

6.60

Tolerance mm : + 0.10	†
Del. quantity cm3/1000 strokes : 22.0	LOW IDLE
Tolerance cm3/1000 strokes : +- 3.0 Check tolerance	t control lever
cm3/1000s. : +- 6.0 Spreed Tolerance	position degree : 69.0 tolerance degree : +- 4.0
cm3/1000 strokes : 4.0 Check tolerance	control lever position degree : 16.0
cm3/1000s. : 8.0	tolerance degree : +- 4.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ Setting point w/out bumper spring + Rated speed rpm : 225
WITH GOVERNOR	CRT mm min. :> 8.80
GUIDE SLEEVE POSITION	Testing:
control lever	Rated speed rpm : 325 rack travel mm : 6.60 Tolerance mm : +- 0.10
position degree : - 1 Rated speed rpm : 1130	+
Rack travel in mm: 16.50 Tolerance mm: + 1.30	Rated speed rpm : 310
Toterance min . + 1.50	TORQUE CONTROL
CONTROL LEVER	Rated speed rpm : 1100 rack travel mm : 12.35 Tolerance mm : + 0.05
control lever position degree : 62.0 tolerance degree : + 4.0	ANEROID/ALTITUDE
control lever position degree : 116.0 tolerance degree : + 4.0	+ COMPENSATOR TEST + SETTING
RATED SPEED rack travel mm : 11.30 Rated speed rpm : 1145 Tolerance 1/min : +- 5	Rated speed rpm : 500 Pressure hPa : 1500 rack travel mm : 12.35 Tolerance mm : +- 0.05
Check speed 1/min : + 10	Rated speed rpm : 500 Pressure hPa : -
rack travel mm : 4.00 Rated speed rpm : 1280 Tolerance 1/min : +- 15	rack travel mm : 10.00 Tolerance mm : + 0.20
Check speed 1/min : + 20	MEASUREMENT 500
rack travel mm : 0.50	Rated speed rpm : 500
Tolerance mm : +- 0.50 Rated speed rpm : 1400	Pressure hPa : 140 rack travel mm : 10.80 Tolerance mm : + 0.15
	Pressure hPa : 200

rack travel mm : 11.75 Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 1100 Del. quantity

cm3/1000 strokes : 164.0

Tolerance

cm3/1000 strokes : +- 4.0

Check tolerance

cm3/1000s.6.0

Aneroid pressure

hPa 500 Rated speed rpm Del. quantity cm3/1000 strokes :

114.0

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s.

STARTING FUEL DELIVERY

Rated speed rpm 100 20.50 rack travel mm Tolerance mm : +- 0.50

Del. quantity

cm3/1000 strokes : 265.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.0

Check tolerance

cm3/1000s.: <del>+-</del> 24.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.60 : + 0.10Tolerance mm

Del. quantity

cm3/1000 strokes : 22.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

: +-6.0 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.06.94 : ISO 4113 Test oil

Combination No. : 0 401 846 986

Injection pump

Pump designation : PE6P110A720RS3289-1 EP type number : 0 411 816 795

Governor

Governer design. : RQ900PA1153 Governer no. : 0 421 801 724

Cust. part No. : 1363597

Customer-spec. information Customer : SCANIA Motor : DS1193A

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration

damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

: 1 417 413 025 Overflow valve

2.5 Inlet press. bar : : **←** 0.1 Tolerance bar

Tolerance l/h: +- 10.0

Test nozzle holde

: 1 688 901 104 assembly

Opening pressure

: 251.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 3.35 : + 0.05 Tolerance mm Check

: + 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

: 1-5-3-6-2-Firing order

: 0-60-120-180-240 Phasing

: -300

: +- 0.50 Tolerance

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rack travel in mm	n: 4.80 :+- 0.10	‡	ASSEMBLY GOVERNOR	R SETTING
Del. quantity cm3/1000 strokes	: 25.0	†	Rated speed rpm rack travel mm	: 900 : 11.30
Tolerance cm3/1000 strokes Check tolerance	: ← 4.0	Ţ	Rated speed rpm Tolerance 1/min	: 946 : + 4
cm3/1000s. Spreed	: ← 6.0	+	rack travel mm	: 4.00
Tolerance cm3/1000 strokes Check tolerance	: 5.0	-	rack travel mm Tolerance mm Rated speed rpm	: 0.50 : +- 0.50 : 1000
cm3/1000s.	: 9.0	1		
(B) SETTING OF IN	NJECTION PUMP	+	Rated speed rpm rack travel mm	: 901 : 11.30
W2 0012		+	Rated speed rpm	: 947
GUIDE SLEEVE TRAV	/EL	‡	Tolerance 1/min rack travel mm	: +- 4
Rated speed rpm guide sleeve travel mm Tolerance mm	: 856 : 0.74 : + 0.10	† † †	rack travel mm Tolerance mm Rated speed rpm	: 0.50 : + 0.50 : 1000
Rated speed rpm	: 630	Ŧ	Rated speed rpm rack travel mm	: 902 : 11.30
guide sleeve travel mm	: -7.07	Ŧ		
Tolerance mm  Rated speed rpm	: +- 0.10 : 1050	+	Rated speed rpm Tolerance 1/min rack travel mm	: 948 : + 4 : 4.00
guide sleeve travel mm	: 16.80	İ	rack travel mm	: 0.50
Tolerance mm	: + 0.10	+	Tolerance mm Rated speed rpm	: + 0.50 : 1000
Rated speed rpm guide sleeve	: 989	‡		
travel mm Tolerance mm	: 10.00 : + 0.10	†	Rated speed rpm rack travel mm	: 903 : 11.30
Rated speed rpm guide sleeve	: 1050	Ŧ	Rated speed rpm Tolerance 1/min	: 949 : +- 4
travel mm Tolerance mm	: 11.50 : + 0.50	‡	rack travel mm	: 4.00
		+	rack travel mm Tolerance mm Rated speed rpm	: 0.50 : ← 0.50 : 1000
CONTROL LEVER		+		
control lever position degree tolerance degree		† †	Rated speed rpm rack travel mm	: 904 : 11.30
control lever		Ī	Rated speed rpm Tolerance 1/min	: 950 : + 4
position degree tolerance degree	: 84.0 : +- 4.0	-	rack travel mm	: 4.00
		‡	rack travel mm Tolerance mm	: 0.50 : + 0.50

Rated speed rpm : 1000 Rated speed rpm 905 11.30 rack travel mm Rated speed rpm : 951 Tolerance 1/min : +-4 4.00 rack travel mm : 0.50 rack travel mm

: +- 0.50

1000

ANEROID/ALTITUDE COMPENSATOR TEST

Tolerance mm

Rated speed rpm :

## SETTING

Rated speed rpm : 500 Pressure hPa : 1500 rack travel mm : 12.35 Tolerance mm : + 0.05

500 Rated speed rpm : Pressure hPa 10.00 rack travel mm : : + 0.20Tolerance mm

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 140 rack travel mm : 10.8 10.80 : + 0.15Tolerance mm

200 Pressure hPa rack travel mm : 11.75 : +- 0.05 Tolerance mm

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 114.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 4.0

#### STARTING FUEL DELIVERY

rack travel mm : 20.50
Tolerance mm Del. quantity

cm3/1000 strokes : 265.0 Tolerance

cm3/1000 strokes : +- 20.0

Check tolerance

cm3/1000s. : +- 24.0

# Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.06.94 Test oil : ISO 4113

Combination No. : 0 401 846 987

# Injection pump

Pump designation : PE6P110A720RS3289-1 EP type number : 0 411 816 795

#### Governor

Governer design. : RQ750PA1153-1 Governer no. : 0 421 801 725

Cust. part No. : 1363596

Customer-spec. information Customer : SCANIA : DS1193A Motor

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : + 2.0 Tolerance °C

Overflow valve : 1 417 413 025

2.5 Inlet press. bar : : **←** 0.1 Tolerance bar

Tolerance l/h:  $\leftarrow$  10.0

Test nozzle holde

: 1 688 901 104 assembly

Opening pressure

bar : 251.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 3.35 : +- 0.05 Tolerance mm

Check

: + 0.10tolerance mm

Rack travel in mm : 10.50 Tolerance mm : + 1.50

: 1-5-3-6-2-Firing order

: 0-60-120-180-240 Phasing

: -300

: +- 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 700

		<b>.</b>	707
Rack travel in mm :	12.35	Rated speed rpm guide sleeve	: 793
	+ 0.05	travel mm	: 10.00
roter differ inti	1	Tolerance mm	: +- 0.10
Del. quantity	+		
cm3/1000 strokes :	172.0	Rated speed rpm	: 850
	<del></del>	guide sleeve	44 50
Tolerance cm3/1000 strokes : -	+ 1.0	travel mm Tolerance mm	: 11.50 : +- 0.50
Cm5/1000 Strokes :	- 1.0 I	rocerance min	: +- 0.50
Check tolerance		***************************************	
cm3/1000s. :	<b>←</b> 4.0 }	FULL LOAD DELIVER	RY AT FULL LOAD STOP
-			
Spreed	+	Rated speed rpm	: 700
<b>*</b> -1	†	Aneroid pressure	. 1500
Tolerance cm3/1000 strokes :	8.0	hPa Del. quantity	: 1500
CIID/ TOOU STROKES :	J. J.	cm3/1000 strokes	: 172.0
Check tolerance		Tolerance	. 170.0
cm3/1000s. :	12.0	cm3/1000 strokes	: + 1.0
•	1	Check tolerance	
		cm3/1000s.	: +- 4.0
	+	Spreed	
	+	Tolerance	
Rack travel in mm :	4.80	cm3/1000 strokes	: 8.0
Tolerance mm :	+ 0.10 +	Check tolerance	. 12.0
Del. quantity	10.0	cm3/1000s.	: 12.0
cm3/1000 strokes : Tolerance	19.0		
	+ 4.0		
Check tolerance	Ţ.,	CONTROL LEVER	
cm3/1000s. :	+ 6.0	- with the tenter of the total the tenter of	
Spreed	+	control lever	
Tolerance	+	position degree	
cm3/1000 strokes :	5.0	tolerance degree	
Check tolerance	+		
cm3/1000s. :	9.0	control lever	22.2
	†	position degree	: 98.0
(D) CETTING OF THESE	TTON DUMP	tolerance degree	: <del>←</del> 4.0
(B) SETTING OF INJECT	ITON POMP		
WITH GOVERNOR	Ī	ASSEMBLY GOVERNOR	SETTING
		.10061361 00461/1401/	
GUIDE SLEEVE TRAVEL	1	Rated speed rpm	: 750
	4	rack travel mm	: 11.30
Rated speed rpm :	759		<b></b> .
guide sleeve	+	Rated speed rpm	: 788
travel mm :	6.81	Tolerance 1/min	
Tolerance mm : 4	<b>←</b> 0.10 +	rack travel mm	: 4.00
Ontard amount arrows	520	nnak danayal mm	. 0.50
Rated speed rpm :	520	rack travel mm Tolerance mm	: 0.50 : +- 0.50
guide sleeve travel mm :	-5.40	Rated speed rpm	: 850
	-3.40 - 0.10	kated speed (bill	. 000
toterance iiiii . T	1		
Rated speed rpm :	850	Rated speed rpm	: 751
guide sleeve	4	rack travel mm	: 11.30
travel mm :	17.21		
	<b></b> 0.10	Rated speed rpm	: 789
	+	Tolerance 1/min	: +- 4

rack travel mm	: 4.00	+
rack travel mm Tolerance mm Rated speed rpm	: + 0.50	ANEROID/ALTITUDE COMPENSATOR TEST
Rated speed rpm		SETTING
rack travel mm Rated speed rpm		Rated speed rpm : 500 Pressure hPa : 1500 rack travel mm : 12.35
Tolerance 1/min rack travel mm	: +- 4 : 4.00	Tolerance mm : +- 0.05 Rated speed rpm : 500
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : +- 0.50 : 850	Pressure hPa : - rack travel mm : 10.00 Tolerance mm : + 0.20
Rated speed rpm		MEASUREMENT 500
rack travel mm Rated speed rpm		Rated speed rpm : 500 Pressure hPa : 200
Tolerance 1/min rack travel mm	: +- 4	rack travel mm : 11.75 Tolerance mm : + 0.05
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : + 0.50 : 850	Pressure hPa : 140 rack travel mm : 10.80 Tolerance mm : + 0.15
Rated speed rpm rack travel mm		FUEL DELIVERY CHARACTERISTICS
	: 11.30 : 792	Aneroid pressure hPa : -
rack travel mm  Rated speed rpm Tolerance 1/min	: 11.30 : 792 : + 4	Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 114.0 Tolerance
rack travel mm  Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Tolerance mm	: 11.30 : 792 : + 4 : 4.00 : 0.50 : + 0.50 : 850	Aneroid pressure  hPa : - Rated speed rpm : 500  Del. quantity cm3/1000 strokes : 114.0
rack travel mm  Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Tolerance mm Rated speed rpm  Rated speed rpm	: 11.30 : 792 : ← 4 : 4.00 : 0.50 : ← 0.50 : 850 : 755 : 11.30 : 793	Aneroid pressure  hPa : - Rated speed rpm : 500  Del. quantity cm3/1000 strokes : 114.0  Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0
Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Tolerance mm Rated speed rpm Rated speed rpm Rated speed rpm Rated speed rpm Tolerance 1/min	: 11.30 : 792 : + 4 : 4.00 : 0.50 : + 0.50 : 850 : 755 : 11.30 : 793 : + 4.00 : 0.50 : + 0.50 : + 0.50	Aneroid pressure  hPa : - Rated speed rpm : 500  Del. quantity cm3/1000 strokes : 114.0  Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 20.06.97 Test oil : ISO 4113

Combination No. : 0 402 646 836

Injection pump

Pump designation : PE6P12OA72ORS7126

: -10

: 0 412 626 926 EP type number

Governor

Governer design. : RQV200...1000PA725

: -1

: 0 421 813 552 Governer no.

Cust. part No. : 1107958

Customer-spec. information : SCANIA Customer : DSC11 18 Motor

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration

damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

: 1 417 413 025 Overflow valve

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

208.5 bar : **←** 1.5 Tolerance bar

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

5.05 Prestroke mm : +- 0.05 Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : **←** 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance °NW : + 0.75

## Start of delivery mark

: + 0.50Tolerance

Check

tolerance °NW : + 0.75

Barrel no. : 1

#### BASIC SETTING

700 Rated speed rpm :

Aneroid pressure Rack travel in mm: 14.15 hPa Tolerance mm :  $\leftarrow$  0.05 Del. quantity cm3/1000 strokes : 235.0 Del. quantity Tolerance cm3/1000 strokes : 235.0 cm3/1000 strokes : + 1.0 Check tolerance : +cm3/1000s. Tolerance 4.0 cm3/1000 strokes :  $\leftarrow$  1.0 Spreed Tolerance Check tolerance cm3/1000 strokes : 6.0 cm3/1000s. : + 4.0 Check tolerance cm3/1000s. 9.0 Spreed Tolerance cm3/1000 strokes : 6.0 CONTROL LEVER Check tolerance control lever 9.0 position degree : 118.0 cm3/1000s. tolerance degree : +- 4.0 control lever position degree : 63.0 Rated speed rpm : 225 tolerance degree : +- 4.0 Rack travel in mm: 4.60 Tolerance mm :  $\leftarrow$  0.10 RATED SPEED 13.10 rack travel mm Del. quantity Rated speed rpm cm3/1000 strokes : 17.0 : 1045 Tolerance 1/min : +-Tolerance cm3/1000 strokes : +- 2.0 Check speed 1/min : +- 10 Check tolerance cm3/1000s. rack travel mm : 4.00 Spreed : 1160 Rated speed rpm Tolerance Tolerance 1/min : +- 15 cm3/1000 strokes : 3.0 Check tolerance Check : + 20 speed 1/min cm3/1000s. : 6.0 (B) SETTING OF INJECTION PUMP Rated speed rpm : 1300 WITH GOVERNOR GUIDE SLEEVE POSITION LOW IDLE control lever position degree : - 1 control lever Rated speed rpm : 1040 position degree : 11.0 tolerance degree : + 4.0 Rack travel in mm: 16.50 control lever Tolerance mm : + 1.30 position degree : 65.0 tolerance degree : +- 4.0 FULL LOAD DELIVERY AT FULL LOAD STOP Setting point w/out bumper spring

Rated speed rpm :

100

Rated speed rpm :

700

		+ Del. quantity
CRT mm min.	: > 6.10	cm3/1000 strokes : 227.0 Tolerance
Testing:		+ cm3/1000 strokes : +- 4.0
Rated speed rpm	: 225	+ Check tolerance + cm3/1000s. : +- 6.0
rack travel mm Tolerance mm	: 4.60	+
ioterance mm	: <del>+-</del> 0.10	Aneroid pressure
rack travel mm		+ hPa : −
Rated speed rpm Tolerance 1/min		+ Rated speed rpm : 500 + Del. quantity
		+ cm3/1000 strokes : 152.0
TORQUE CONTROL		
Rated speed rpm		Check tolerance
rack travel mm Tolerance mm		+ cm3/1000s. : +- 4.0
		<del>-</del>
Rated speed rpm rack travel mm	: 1000 : 14 15	+ STARTING FUEL DELIVERY
Tolerance mm	: + 0.10	+
		+ Rated speed rpm : 100
ANDDOTA /ALTERIA	·	+ rack travel mm : 20.50
ANEROID/ALTITUDE		+ Tolerance mm : + 0.50
COMPENSATOR TEST		+ Del. quantity + cm3/1000 strokes : 300.0
		+ Tolerance
SETTING		- cm3/1000 strokes : +- 20.0
		+ Check tolerance
Rated speed rpm		cm3/1000s. : +- 24.0
Pressure hPa rack travel mm		İ
Tolerance mm		Ţ
		LOW TOLE
Rated speed rpm Pressure hPa	: 500	+ LOW IDLE
rack travel mm		Rated speed rpm : 225
Tolerance mm	: <del>+</del> 0.20	+ Rack travel in mm : 4.60
MEASUREMENT		+ Tolerance mm : + 0.10
		→ Del. quantity
Rated speed rpm	: 50C	+ cm3/1000 strokes : 17.0
Pressure hPa	: 250	+ Tolerance + cm3/1000 strokes : +- 2.0
rack travel mm	: 20	Check tolerance
Tolerance mm	: + 0.20	+ cm3/1000s. : +- 4.0
	<b>546</b>	Spreed
Pressure hPa	: 510 : 13.05	+ Tolerance + cm3/1000 strokes : 3.0
rack travel mm Tolerance mm	: + 0.05	+ Check tolerance
roter drice limi	. , 0.05	cm3/1000s. : 6.0
FUEL DELIVERY CHA	ARACTERISTICS	<u> </u>
Aneroid pressure		End of test specification sheet
hPa	: -	+ Lind of test specification sheet
Rated speed rom	: 1000	1

Rated speed rpm : 1000

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.11.94 Test oil : ISO 4113

Combination No. : 0 402 646 880

Injection pump

Pump designation : PE6P12OA72ORS7126

: -10

EP type number : 0 412 626 929

Governor

Governer design. : RQV200...1050PA725

: -5

Governer no. : 0 421 813 814

Cust. part No. : 1120969

Customer—spec. information
Customer : SCANIA
Motor : DS 11

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5 Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 5.05 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

\_\_\_\_\_

	•	• •	
Rack travel in mm : 14. Tolerance mm : + 0.		Aneroid pressure hPa Del. quantity	: 900
Del. quantity cm3/1000 strokes : 239	5.0	cm3/1000 strokes Tolerance cm3/1000 strokes	
CIRDA 1000 SCHORES . 23.	J.0	Check tolerance	1.0
Tolerance cm3/1000 strokes : +- 1	1.0	cm3/1000s. Spreed Tolerance	: +- 4.0
Check tolerance cm3/1000s. : + 4	4.0	cm3/1000 strokes Check tolerance	
Spreed		cm3/1000s.	: 9.0
Tolerance cm3/1000 strokes : 6	5.0	CONTROL LEVER	
Check tolerance cm3/1000s. : 9	9.0	control lever position degree tolerance degree	
Rated speed rpm : 225	5	control lever position degree tolerance degree	
	.60 .30	RATED SPEED	
Del. quantity cm3/1000 strokes : 17 Tolerance	7.0	rack travel mm Rated speed rpm Tolerance 1/min	: 1095
	2.0	Check speed 1/min	: +- 10
Spreed	÷.0 + +	rack travel mm	
Tolerance cm3/1000 strokes : 3 Check tolerance	3.0	Rated speed rpm Tolerance 1/min Check	
	5.0	speed 1/min	: +- 20
(B) SETTING OF INJECTION F WITH GOVERNOR	PUMP	rack travel mm Tolerance mm Rated speed rpm	: +- 0.50
GUIDE SLEEVE POSITION	Ī	LOW IDLE	
control lever position degree : - 1	-	control lever	
Rated speed rpm : 1200	+	position degree tolerance degree	
Rack travel in mm : 10. Tolerance mm : + 2.	50	control lever position degree tolerance degree	
FULL LOAD DELIVERY AT FULL	LOAD STOP	Setting point w/o	ut bumper spring
	. i		

Rated speed rpm : 100

Rated speed rpm : 700

Tolerance CRT mm min. :> 6.10cm3/1000s. Testing: : 225 Rated speed rpm rack travel mm 4.60 : + - 0.30Tolerance mm hPa 300 Rated speed rpm : Tolerance TORQUE CONTROL Rated speed rpm : 700 cm3/1000s. rack travel mm 14.15 Tolerance mm : **←** 0.05 Rated speed rpm : 1050 rack travel mm : 14.15 : +- 0.05 Tolerance mm ANEROID/ALTITUDE Del. quantity COMPENSATOR TEST Tolerance SETTING 500 cm3/1000s.Rated speed rpm Pressure hPa 900 14.15 rack travel mm : : +- 0.05 Tolerance mm 500 LOW IDLE Rated speed rpm Pressure hPa 10.70 rack travel mm : + 0.20Tolerance mm **MEASUREMENT** Del. quantity Rated speed rpm : 500 Tolerance 510 Pressure hPa rack travel mm 13.05 : + 0.05cm3/1000s. Tolerance mm Spreed 250 Tolerance Pressure hPa 11.20 rack travel mm : : + 0.20Tolerance mm cm3/1000s. FUEL DELIVERY CHARACTERISTICS Aneroid pressure 900 hPa

cm3/1000 strokes : +- 4.0Check tolerance : +- 6.0 Aneroid pressure 500 Rated speed rpm : Del. quantity cm3/1000 strokes : 152.0 cm3/1000 strokes : +-2.0 Check tolerance : +- 4.0 STARTING FUEL DELIVERY Rated speed rpm : 100 rack travel mm : 20.50 : +- 0.50 Tolerance mm cm3/1000 strokes : 300.0 cm3/1000 strokes : +- 20.0Check tolerance : +- 24.0 Rated speed rpm : 225 Rack travel in mm : 4.60 Tolerance mm :  $\leftarrow$  0.30 cm3/1000 strokes : 17.0 cm3/1000 strokes : +- 2.0Check tolerance : +-4.0 cm3/1000 strokes : 3.0 Check tolerance 6.0

End of test specification sheet

Rated speed rpm

cm3/1000 strokes : 226.0

Del. quantity

1050

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 20.10.94

Test oil

: ISO 4113

Combination No. : 0 402 646 885

Injection pump

Pump designation : PE6P120A720RS7126

: -10

EP type number

: 0 412 626 929

Governor

Governer design. : RQV350...1050PA795

: -9

Governer no.

: 0 421 813 769

Cust. part No.

: 1305080

Customer-spec. information

Customer

: SCANIA

Motor

: DS11 54,57

#### TEST BENCH REQUIREMENTS

Inlet line

: 4.2

Vibration

damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 019

Opening pressure

208.5

Tolerance bar : + 1.5

D16

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter :

3.0

x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 5.05

: + - 0.05Tolerance mm

Check

tolerance mm : ← 0.10

Rack travel in mm: 10.50

Tolerance mm : + 1.50

: 1-5-3-6-2-Firing order

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

: +- 0.50 Tolerance

Check

: +- 0.75 tolerance 'NW

Barrel no.

: 1

BASIC SETTING

Rated speed rpm :

700

Rack travel in mm: 14.15

Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 235.0  Tolerance cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 4.0  Spreed  Tolerance cm3/1000 strokes : 6.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER
Check tolerance cm3/1000s. : 9.0	control lever position degree : 54.0 tolerance degree : + 4.0
Rated speed rpm : 350	control lever position degree : 102.0 tolerance degree : + 4.0
Rack travel in mm: 4.40 Tolerance mm: + 0.30 Del. quantity cm3/1000 strokes: 17.0 Tolerance cm3/1000 strokes: + 2.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes: 3.0 Check tolerance cm3/1000s. : 6.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR	RATED SPEED rack travel mm : 13.10 Rated speed rpm : 1095 Tolerance 1/min : + 5 Check speed 1/min : + 10  rack travel mm : 4.00 Rated speed rpm : 1240 Tolerance 1/min : + 15 Check speed 1/min : + 20  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1350
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : -1 Rated speed rpm : 1230  Rack travel in mm : 16.50 Tolerance mm : + 1.30	control lever position degree : 72.0 tolerance degree : + 4.0  control lever position degree : 23.0 tolerance degree : + 4.0
FULL LOAD DELIVERY AT FULL LOAD STOP	Setting point w/out bumper spring
Rated speed rpm : 700 Aneroid pressure	Rated speed rpm : 100
hPa : - Del. quantity	CRT mm min. : > 10.00
cm3/1000 strokes : 235.0 +	Testing:

Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm	: 300
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm Tolerance mm	: 1000 : 14.15 : ← 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900 : 14.15 : + 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 10.70 : + 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 510 : 13.05 : ← 0.05
Pressure hPa rack travel mm Tolerance mm	: 250 : 11.20 : + 0.20
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa Rated speed rpm	: – : 1000
Del. quantity cm3/1000 strokes Tolerance	: 227.0
cm3/1000 strokes Check tolerance	
cm3/1000s.	: <b>←</b> 6.0

hF Ra De cn To cn Ch	neroid pressure pa ated speed rpm el. quantity n3/1000 strokes blerance n3/1000 strokes neck tolerance n3/1000s.			500 152.0 2.0 4.0	
Ra ra To De cm To	TARTING FUEL DEL sted speed rpm sck travel mm blerance mm el. quantity 13/1000 strokes blerance 13/1000 strokes seck tolerance 13/1000s.	:	+-	100 20.50 0.50 300.0 20.0 24.0	
Ra To De To Ch Cm Sp Cm	ow IDLE  Ited speed rpm  Ick travel in mm  Ilerance mm  I. quantity  I3/1000 strokes  Ierance  I2/1000 strokes  Ieck tolerance  I2/1000s.  Ireed  Ilerance  I2/1000 strokes  Ilerance  I2/1000s.	: : : : : : : : : : : : : : : : : : : :	+-	350 4.40 0.30 17.0 2.0 4.0 3.0 6.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 30.09.94 Test oil : ISO 4113

Combination No. : 0 402 646 904

Injection pump

Pump designation : PE6P120A720RS7126

: -10

EP type number : 0 412 626 929

Governor

Governer design. : RQV300...900PA795

: -10

Governer no. : 0 421 813 846

Cust. part No. : 1305081

Customer—spec. information Customer : SCANIA Motor : DS11

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp.  $^{\circ}$ C :  Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300 Tolerance : + 0.50

Check

tolerance  $^{\circ}NW$  : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm: 14.15

Tolerance mm : ← J.05

+	Tolerance
Del. quantity cm3/1000 strokes : 235.0	cm3/1000 strokes : +- 1.0 Check tolerance
Tolerance	cm3/1000s. : +- 4.0 Spreed
cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : 6.0
Check tolerance cm3/1000S. : +- 4.0	Check tolerance cm3/1000s. : 9.0
Spreed	
Tolerance cm3/1000 strokes : 6.0	CONTROL LEVER
Check tolerance cm3/1000s. : 9.0	control lever position degree : 50.0 tolerance degree : +- 4.0
	control lever
$\underline{1}$	position degree : 108.0
Rated speed rpm : 300	tolerance degree : + 4.0
Rack travel in mm: 4.50	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 13.10
Del. quantity	Rated speed rpm : 945
cm3/1000 strokes : 17.0	Tolerance 1/min : +- 5
Tolerance	Check
cm3/1000 strokes : + 2.0 + Check tolerance	speed 1/min : +- 10
cm3/1000s. : +- 4.0	rack travel mm : 4.00
· ·	
Spreed	Rated speed rpm : 1045
Tolerance	Tolerance 1/min : + 15
cm3/1000 strokes : 3.0 +	Check
Check tolerance +	speed 1/min : +- 20
cm3/1000s. : 6.0 +	
+	rack travel mm : 0.50
<del> </del>	Tolerance mm : + 0.50
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1150
<del></del>	
GUIDE SLEEVE POSITION	LOW IDLE
1	
control lever	control lever
position degree : -1	position degree : 77.0
Rated speed rpm : 970	tolerance degree : +- 4.0
Mateu Specu (piii . 710	totol alloc acgrees . The
Rack travel in mm : 16.50	control lever
Tolerance mm : + 1.30	position degree : 19.0
Toterance man . 1.50	tolerance degree : +- 4.0
	toterance degree 4.0
FULL LOAD DELIVERY AT FULL LOAD STOP	Setting point w/out bumper spring
Rated speed rpm : 700 Aneroid pressure	Rated speed rpm : 100
hPa : - +	CRT mm min. : > 10.00
Del. quantity cm3/1000 strokes : 235.0 +	Testing:

Rated speed rpm rack travel mm Tolerance mm	:	300 4.50 0.10	+ + + +	Check cm3/10
Rated speed rpm rack travel mm	:	300 2.00	+ + +	Aneroi hPa Rated Del. c cm3/10
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: +	700 14.15 0.05	+	Tolera cm3/10 Check cm3/10
Rated speed rpm rack travel mm Tolerance mm	: : : +	900 14.15 - 0.05		STARTI
ANEROID/ALTITUDE COMPENSATOR TEST			— <del> </del> + + + + + + + + + + + + + + + + + + +	Rated rack t Tolera Del. c
SETTING			Ŧ	cm3/10
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: +	500 900 14.15 - 0.05	† † † †	cm3/10 Check cm3/10
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	:	-	+	LOW ID
MEASUREMENT			‡	Rack t
Rated speed rpm	:	500	1	Tolera Del. c cm3/10
Pressure hPa rack travel mm Tolerance mm	: : : +	510 13.05 - 0.05	+	Tolera cm3/10 Check cm3/10
Pressure hPa rack travel mm Tolerance mm	: : : +	250 11.20 - 0.20	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Spreed Tolera cm3/10 Check cm3/10
FUEL DELIVERY CHA	RACT	ERISTICS	_	
Aneroid pressure hPa	:	<del></del>	+	End of
Rated speed rpm Del. quantity cm3/1000 strokes	:	900 224.0	† † †	

tolerance : +- 6.0 000s. id pressure 500 speed rpm quantity 000 strokes : 152.0 ance 000 strokes : + 2.0tolerance : +- 4.0 000s. ING FUEL DELIVERY speed rpm : 100 travel mm : 20.50 : +- 0.50 ance mm quantity 000 strokes : 300.0 ance 000 strokes : +- 20.0tolerance : + 24.0 000s. DLE speed rpm : 300 travel in mm: 4.50 ance mm : +- 0.10 quantity 000 strokes : 17.0 ance 000 strokes : +- 2.0tolerance 000s. : +-4.0 ď ance 000 strokes : 3.0 tolerance 6.0 000s.

End of test specification sheet

Tolerance

cm3/1000 strokes :  $\leftarrow$  4.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 12.12.94 Test oil : ISO 4113

Combination No. : 0 402 648 839

# Injection pump

Pump designation : PE8P120A720LS7125

: -10T

EP type number : 0 412 628 890

# Governor

Governer design. : RQV200...950PA736-1

Governer no. : 0 421 813 551

Cust. part No. : 380804

Customer—spec. information Customer : SCANIA Motor : DSC14 03

### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Vibration

damper

(RoBo diaphragm) : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 1.5

x length mm : 600

#### **REMARKS**

# (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05Tolerance mm :  $\leftarrow 0.05$ 

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-2-7-3-4

: - 5- 6- 8

Phasing : 0-45-90-135-180

: -225-270-315 : +- 0.50

Check

Tolerance

tolerance  $^{\circ}NW$  : +- 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

## BASIC SETTING

Rated speed  $r_{\rm soft}$ : 225

Rack travel in mm : -.00

Tolerance mm : + 0.10 +	
Del. quantity + cm3/1000 strokes : 18.0 +	LOW IDLE
Tolerance + 2.0 +	
Check tolerance +	control lever
cm3/1000s. : + 4.0 + 5preed	position degree : 44.0 tolerance degree : +- 4.0
Tolerance + cm3/1000 strokes : 3.0 +	control lever
Check tolerance	position degree : 10.0
cm3/1000s. : 6.0	tolerance degree : +- 4.0
(B) SETTING OF INJECTION PUMP	Setting point w/out bumper spring
WITH GOVERNOR	Rated speed rpm : 125
	CRT mm min. :> 6.00
GUIDE SLEEVE POSITION	Testing:
Ţ.	Rated speed rpm : 225
control lever + position degree : -1 +	rack travel mm : 5.00 Tolerance mm : + 0.10
Rated speed rpm : 1040	Total disce min
14.50	rack travel mm : 2.00
Rack travel in mm : 16.50 + Tolerance mm : + 1.30 +	Rated speed rpm : 390 Tolerance 1/min : +- 30
+	
+	TORQUE CONTROL
CONTROL LEVER	
control lever +	Rated speed rpm : 950 rack travel mm : 13.85
position degree : 60.0	Tolerance mm : +- 0.05
tolerance degree : + 4.0	
control lever	ANEROID/ALTITUDE
position degree : 95.0	COMPENSATOR TEST
tolerance degree : + 4.0 +	
RATED SPEED	SETTING
rack travel mm : 12.80 + Rated speed rpm : 995 +	Rated speed rpm : 500
Tolerance 1/min : + 5	Pressure hPa : 900
Check + speed 1/min : + 10 +	rack travel mm : 13.85 Tolerance mm : +- 0.05
speed 1/min : +- 10 +	Total differ diffic
rack travel mm : 4.00 +	Rated speed rpm : 500
Rated speed rpm : 1125 + Tolerance 1/min : + 15 +	Pressure hPa : - rack travel mm : 11.40
Check	Tolerance mm : +- 0.20
speed 1/min : + 20 +	MEASUREMENT
rack travel mm : 0.50	
Tolerance mm : + 0.50 +	Rated speed rpm : 500
Rated speed rpm : 1250	Pressure hPa : 215
+	rack travel mm : 12.00
+	Tolerance mm : + 0.15

Pressure hPa 365 12.85 rack travel mm : +- 0.05 Tolerance mm

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure 900 hPa Rated speed rpm 950 Del. quantity cm3/1000 strokes : 215.0

Tolerance cm3/1000 strokes : +-4.0

Check tolerance

cm3/1000s. : + 6.0

Aneroid pressure

hPa 500 Rated speed rpm Del. quantity

cm3/1000 strokes : 160.0 Tolerance cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. 4.0

#### STARTING FUEL DELIVERY

Rated speed rpm 100 20.50 rack travel mm : Tolerance mm : + 0.50Del. quantity cm3/1000 strokes : 265.0

Tolerance cm3/1000 strokes : + 20.0

Check tolerance

cm3/1000s.: + 24.0

## LOW IDLE

Rated speed rpm : 225

Rack travel in mm: 5.00 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 18.0

Tolerance

cm3/1000 strokes : +-2.0 Check tolerance

cm3/1000s.

: +- 4.0

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. 6.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 20.10.94 Test oil : ISO 4113

Combination No. : 0 402 648 867

Injection pump

Pump designation : PE8P120A720/4LS7166

: -1

EP type number : 0 412 628 897

Governor

Governer design. : RQ750PA758-7 Governer no. : 0 421 801 490

Cust. part No. : 1305125

Customer—spec. information Customer : SCANIA Motor : DS 14

#### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Vibration damper

(RoBo diaphragm) : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-2-7-3-4

: - 5- 6- 8

Phasing : 0-45-90-135-180

: -225-270-315 : + 0.50

Tolerance Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : + 0.50

Check

tolerance °NW

: +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.55
Tolerance mm : + 0.05

		L	
Del. quantity cm3/1000 strokes	: 253.0	CONTROL LEVER	
Tolerance cm3/1000 strokes	: + 1.0	- control lever - position degree - tolerance degree	
Check tolerance cm3/1000s.	: +- 4.0	- control lever - position degree	: 89.0
Spreed		- tolerance degree	
Tolerance cm3/1000 strokes	: 7.0	- - ASSEMBLY GOVERNOR -	R SETTING
Check tolerance cm3/1000s.	: 10.0	- Rated speed rpm - rack travel mm	
		<ul> <li>Rated speed rpm</li> <li>Tolerance 1/min</li> <li>rack travel mm</li> </ul>	: +- 4
Rack travel in mm Tolerance mm Del. quantity	: +- 0.10	- - rack travel mm - Tolerance mm	: 0.50 : ← 0.50
cm3/1000 strokes Tolerance cm3/1000 strokes	<del>-  </del>	- Rated speed rpm -	: 850
Check tolerance cm3/1000s. Spreed	: +- 6.0	- Rated speed rpm - rack travel mm -	
Tolerance cm3/1000 strokes Check tolerance	+	<ul> <li>Rated speed rpm</li> <li>Tolerance 1/min</li> <li>rack travel mm</li> </ul>	
cm3/1000s.	: 7.0	rack travel mm Tolerance mm	: 0.50 : +- 0.50
(B) SETTING OF IN- WITH GOVERNOR	JECLION FOME	- Rated speed rpm - -	: 850
FULL LOAD DELIVED	Y AT FULL LOAD STOP	Rated speed rpm rack travel mm	
Rated speed rpm	: 700	Rated speed rpm Tolerance 1/min	: 790 : +- 4
Aneroid pressure	: 900	rack travel mm	: 4.00
Del. quantity cm3/1000 strokes Tolerance	: 253.0	rack travel mm Tolerance mm Rated speed rpm	: 0.50 : +- 0.50 : 850
cm3/1000 strokes Check tolerance	+		
cm3/1000S. Spreed Tolerance	: +- 4.0	Rated speed rpm rack travel mm	: 753 : 11.50
cm3/1000 strokes Check tolerance	+	Rated speed rpm Tolerance 1/min	: +- 4
cm3/1000s.	: 10.0	rack travel mm	: 4.00
	‡	rack travel mm Tolerance mm	: 0.50 : +- 0.50

850 Rated speed rpm : Rated speed rpm : 754 11.50 rack travel mm Rated speed rpm 792 : Tolerance 1/min : +-4.00 rack travel mm rack travel mm 0.50 : ← 0.50 Tolerance mm Rated speed rpm 850 Rated speed rpm 755 rack travel mm 11.50 : Rated speed rpm : 793 Tolerance 1/min : +-4 rack travel mm 4.00 rack travel mm 0.50 : **←** 0.50 Tolerance mm Rated speed rpm : 850

TORQUE CONTROL
Rated speed rpm : 700
rack travel mm : 12.55
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.55
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 9.90
Tolerance mm : + 0.20

#### **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 365
rack travel mm : 11.85
Tolerance mm : + 0.05

Pressure hPa : 215 rack travel mm : 10.90

Tolerance mm : +- 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 160.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 16,12,94 Edition : ISO 4113 Test oil

Combination No. : 0 402 648 868

Injection pump

Pump designation : PE8P120A720LS7180

: -10

: 0 412 628 892 EP type number

Governor

Governer design. : RQV350...1050PA795

: -8

Governer no. : 0 421 813 770

Cust. part No. : 1305130

Customer-spec. information Customer : SCANIA Motor : DSI 14

#### TEST BENCH REQUIREMENTS

: 4.1 Inlet line

Vibration damper

(RoBo diaphragm) : 3.2

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : + 0.1

Test nozzla Halde

: 1 688 901 019 assembly

Opening pressure

208.5 bar Tolerance bar : **←** 1.5 Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

5.05 Prestroke mm Tolerance mm : + 0.05

Check

tolerance mm : + - 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-2-7-3-4

: - 5- 6- 8

: 0-45-90-135-180 Phasing

: -225-270-315 : +- 0.50 Tolerance

Check

: + 0.75tolerance °NW

Start of delivery mark

: + 0.50Tolerance

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 350	
Rack travel in mm: 4.60 Tolerance mm: : + 0.30	
Del. quantity cm3/1000 strokes : 17.0	LOW IDLE
Tolerance + cm3/1000 strokes : + 2.0 + Check tolerance +	control lever position degree : 72.0
cm3/1000s. : + 4.0	tolerance degree : +- 4.0
Tolerance cm3/1000 strokes : 3.0	control lever position degree : 16.0
Check tolerance cm3/1000s. : 6.0	tolerance degree : + 4.0  Setting point w/out bumper spring
(P) SETTING OF INJECTION PUMP	
WITH GOVERNOR	Rated speed rpm : 250
	CRT mm min. : > 6.00 Testing:
GUIDE SLEEVE POSITION	-
<del></del>	Rated speed rpm : 350 rack travel mm : 4.60
control lever + position degree : -1 +	Tolerance mm : +- 0.30
Rated speed rpm : 1325	Rated speed rpm : 300
Rack travel in mm: 8.50 Tolerance mm: + 2.50	TORQUE CONTROL
	Rated speed rpm : 1050
CONTROL LEVER	rack travel mm : 13.25 Tolerance mm : + 0.05
control lever position degree : 47.0 tolerance degree : + 4.0	ANEROID/ALTITUDE COMPENSATOR TEST
control lever position degree : 102.0 tolerance degree : + 4.0	SETTING
RATED SPEED rack travel mm : 12.20 Rated speed rpm : 1095 Tolerance 1/min : + 5	Rated speed rpm : 500 Pressure hPa : 900 rack travel mm : 13.25 Tolerance mm : + 0.05
Check + 10	Rated speed rpm : 500 Pressure hPa : -
rack travel mm : 4.00	rack travel mm : 9.90 Tolerance mm : + 0.20
Rated speed rpm : 1230 + Tolerance 1/min : + 15 +	MEASUREMENT
Check speed 1/min : + 20	Rated speed rpm : 500
rack travel mm : 0.50  Tolerance mm : + 0.50  Rated speed rpm : 1350	Pressure hPa : 215 rack travel mm : 10.90 Tolerance mm : + 0.10
	. 2000

Pressure hPa : rack travel mm : 365 11.85 rack travel mm

: + - 0.05Tolerance mm

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

900 Rated speed rpm

1050

Del. quantity

cm3/1000 strokes : 262.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  4.0

Check tolerance

cm3/1000s.6.0

Aneroid pressure

500

Rated speed rpm Del. quantity

cm3/1000 strokes : 160.0

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. : + 4.0

## STARTING FUEL DELIVERY

100 Rated speed rpm 9.90 rack travel mm : + 0.20Tolerance mm

Del. quantity

cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

cm3/1000s.: + 24.0

## LOW IDLE

Rated speed rpm : 350

4.60 Rack travel in mm : 0.30 Tolerance mm

Del. quantity

cm3/1000 strokes : 17.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

**: ←** 4.0 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. 6.0

End of test specification sheet

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Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 17.11.94 : ISO 4113

Combination No. : 0 402 648 873

Injection pump

Pump designation : PE8P120A920/4LS7166

: -1

EF type number : 0 412 628 897

Governor

Governer design. : RQ900PA758-13

Governer no. : 0 421 801 501

Cust. part No. : 1305126

Customer-spec. information Customer : SCANIA

Motor

: DS 14

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Vibration

damper

(RoBo diaphragm) : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 600

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

REMARKS

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 5.05 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-2-7-3-4

: - 5- 6- 8

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

		+	Rated speed rpm	
Rack travel in m		<del>†</del>	rack travel mm	: 11.50
Tolerance mm	: ← 0.10	+		
Tolerance		+	Rated speed rpm	: 946
cm3/1000 strokes	: <del>←</del> 4.0	+	Tolerance 1/min	: +- 5
Check tolerance		1	rack travel mm	
cm3/1000s.	: +- 6.0	1		,,,,,
Spreed		1	rack travel mm	: 0.50
Tolerance		1		
cm3/1000 strokes	: 4.0	T	Tolerance mm Rated speed rpm	: 1000
Check tolerance		Ţ	kated speed rpm	. 1000
		Ť		
cm3/1000s.	: 7.0	†		204
		†	Rated speed rpm	
		†	rack travel mm	: 11.50
(B) SETTING OF I	NJECTION PUMP	+		
WITH GOVERNOR		+	Rated speed rpm	
		+	Tolerance 1/min	: <b>←</b> 5
		<del></del> }	rack travel mm	: 4.00
GUIDE SLEEVE TRA	VEL	1		,,,,,
·····		1	rack travel mm	: 0.50
Rated speed rpm	: 909	1	Tolerance mm	
guide sleeve	, , , ,	$\mathbf{I}$	Rated speed rpm	: 1000
travel mm	: 4.74	T	wared sheen this	. 1000
Tolerance mm	· 4.14	Ī		
roterance mm	: - 0.25	Ť	<b>D</b> -+II	
Date of an end one	. /70	†	Rated speed rpm	
Rated speed rpm	: 630	†	rack travel mm	: 11.50
guide sleeve		†		
travel mm	: <del>-6</del> .36	+	Rated speed rpm	
Tolerance mm	: <del></del> 0.25	+	Tolerance 1/min	: +- 5
		+	rack travel mm	: 4.00
Rated speed rpm	: 1040	+		
guide sleeve		1	rack travel mm	: 0.50
travel mm	: 16.81	1	Tolerance mm	
Tolerance mn		<u>.</u>	Rated speed rpm	
		1	The second of th	
Rated speed rpm	: 977	1		
guide sleeve	• • • • • • • • • • • • • • • • • • • •	1	Rated speed rpm	: 903
travel mm	: 10.00	1	rack travel mm	
Tolerance mm	: +- 0.25	I	THE CHAVEC IMI	. 17.50
TOTEL ALICE HAIL	. , . 0.25	T	Datad aread are	. 0/0
Dated annual	. 10/0	Ť	Rated speed rpm	
Rated speed rpm	. 1040	†	Tolerance 1/min	
guide sleeve	44.50	†	rack travel mm	: 4.00
travel mm	: 11.50	+		_ = -
Tolerance mm	: +- 0.50	+	rack travel mm	
		+	Tolerance mm	
		+	Rated speed rpm	: 1000
		<del></del> +		
CONTROL LEVER		+		
		+	Rated speed rpm	: 904
control lever		+	rack travel mm	
position degree	: 24.0	1		
tolerance degree	: +- 4.0	1	Rated speed rpm	: 950
		1	Tolerance 1/min	
control lever		1	rack travel mm	
position degree	• 86.0	Ţ	I GCV LIGACT WITH	. 4.00
		T	nock though the	. 0.50
tolerance degree	. <del></del> 4.0	†	rack travel mm	
		†	Tolerance mm	
		+	Rated speed rpm	: 1000
ASSEMBLY GOVERNOR	R SETTING	+		
		+		
		•		

Rated speed rpm : 905 rack travel mm : 11.50

Rated speed rpm : 951
Tolerance 1/min : +- 5
rack travel mm : 4.00

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.55
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 10.20
Tolerance mm : +- 6.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 215
rack travel mm : 10.90
Tolerance mm : + 0.10

Pressure hPa : 365
rack travel mm : 11.85
Tolerance mm : + 0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 160.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. :  $\leftarrow$  4.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 12.12.94 Test oil : ISO 4113

Combination No. : 0 402 648 883

Injection pump

Pump designation : PE8P12OA72OLS7125

: -10

EP type number : 0 412 628 891

Governor

Governer design. : RQV300...900PA795

: -11

Governer no. : 0 421 813 847

Cust. part No. : 1305129

Customer—spec. information Customer : SCANIA Motor : DS14 48M

#### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Vibration damper

(RoBo diaphragm) : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Tolerance l/h:  $\leftarrow$  10.0

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 5.05 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-2-7-3-4

: - 5- 6- 8

Phasing : 0-45-90-135-180 : -225-270-315

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Dated around nam	. 700	
Rated speed rpm	: 300	GUIDE SLEEVE POSITION
Rack travel in mm Tolerance mm	_ : _ : _ : _ : _ : _ : _ : _ : _ : _ :	
Del. quantity	0.10	control lever
cm3/1000 strokes	: 17.0	position degree : - 1
Tolerance cm3/1000 strokes	: + 2.0	Rated speed rpm : 1035
Check tolerance	1	Rack travel in mm : 12.50
cm3/1000s. Spreed	: + 4.0	Tolerance mm : +- 1.30
Tolerance	+	
cm3/1000 strokes Check tolerance	: 3.0	CONTROL LEVER
	: 6.0	CONTROL LEVER
	†	control lever
(B) SETTING OF INJ	FCTTON PUMP	position degree : 47.0 tolerance degree : +- 4.0
WITH GOVERNOR	+	•
	<del> </del>	control lever position degree : 105.0
GUIDE SLEEVE TRAVE	<u>.</u>	tolerance degree : + 4.0
Rated speed rpm	: 960 +	RATED SPEED
guide sleeve	. 700	rack travel mm : 12.50
travel mm	: 8.18	Rated speed rpm : 945
Tolerance mm	: + 0.20 +	Tolerance 1/min : +- 5 Check
Rated speed rpm	: 300	speed 1/min : +- 10
guide sleeve	+	
	: 1.56 : ← 0.15	rack travel mm : 4.00
TOLETATICE THIS	- 0.13	Rated speed rpm : 1040 Tolerance 1/min : +- 15
·	: 688	Check
guide sleeve travel mm	: 5.27	speed 1/min : + 20
	: + 0.25	rack travel mm : 0.50
	+	Tolerance mm : + 0.50
	: 345	Rated speed rpm : 1150
guide sleeve travel mm	: 2.04	
Tolerance mm	: + 0.25	
Rated speed rpm	: 395	LOW IDLE
guide sleeve	+	
travel mm	: 2.62	and and the same
Tolerance mm	: + 0.25	control lever position degree : 73.0
Rated speed rpm	: 450	tolerance degree : +- 4.0
guide sleeve travel mm	: 3.12	control lever
	: + 0.25	position degree : 15.0
	+	tolerance degree : +- 4.0
	: 1190	Satting point World human anning
guide sleeve travel mm	: 11.50	Setting point w/out bumper spring
	: + 0.50	Rated speed rpm : 175
	‡	CRT mm min. : > 6.30

## Testing:

Rated speed rpm : 300 rack travel mm : 4.80 Tolerance mm :  $\div$  0.10

Rated speed rpm : 325

## TORQUE CONTROL

Rated speed rpm : 850 rack travel mm : 13.55 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.55
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 11.35
Tolerance mm : + 0.20

## MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 215
rack travel mm : 12.00
Tolerance mm : + 0.15

Pressure hPa : 365 rack travel mm : 12.85 Tolerance mm : + 0.05

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 850 Del. quantity

cm3/1000 strokes : 209.0

Tolerance

cm3/1000 strokes : + 4.0

Check tolerance

cm3/1000s. : +- 6.0

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 160.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity

pet. quantity

cm3/1000 strokes : 265.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.0

Check tolerance

cm3/1000s. : +- 24.0

#### LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.80
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 17.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000s. : + 4.0
Spreed
Tolerance
cm3/1000 strokes : 3.0
Check tolerance

cm3/1000s. :

End of test specification sheet

6.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 27.01.95 Test oil : ISO 4113

Combination No. : 0 402 945 301

Injection pump

Pump designation : PES5P120A720LS8511 EP type number : 0 412 925 201

Governor

Governer design. : RQV325...950PA1154K

Governer no. : 0 421 815 976

Cust. part No. : 0240749302

Customer-spec. information Customer : MB-NFZ Motor : 0M449 LA Power KW : 216.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet temp. °C : + 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Overflow quantity min. l/h : 90 Tolerance l/h : +- 10.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.85
Tolerance mm : +- 0.05

Check

: **←** 0.10 tolerance mm

Rack travel in mm: 14.50 Tolerance mm : +- 0.50

Firing order : 1-3-5-4-2

Phasing : 0-72-144-216-288

Start of delivery blocking

Barrel no. : 5

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.50 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 389.0

E09

Tolerance cm3/1000 strokes : + 1.0	travel mm : 2.76 Tolerance mm : + 0.25
Check tolerance cm3/1000s. : ← 6.0	Rated speed rpm : 510
Spreed	guide sleeve travel mm : 3.21
Tolerance cm3/1000 strokes : 10.0	Tolerance mm : + 0.25 Rated speed rpm : 1169
Check tolerance cm3/1000s. : 14.0	guide sleeve travel mm : 12.00 Tolerance mm : +- 0.25
	Rated speed rpm : 1250 guide sleeve
Rated speed rpm : 325	travel mm : 13.50 Tolerance mm : + 0.50
Rack travel in mm : 4.70 Tolerance mm : + 0.10	†
Del. quantity cm3/1000 strokes : 19.0	GUIDE SLEEVE POSITION
Tolerance	+
cm3/1000 strokes : + 3.0	+ control lever
Check tolerance cm3/1000s. : +- 6.0	position degree : - 1 Rated speed rpm : 1160
Spreed	+
Tolerance	+ Rack travel in mm : 12.50
cm3/1000 strokes : 8.0 Check tolerance	Tolerance mm : +- 2.50
cm3/1000s. : 14.0	
	FIRE 1 040 PER TVESV AT 51114 1 040 0000
	+ FULL LOAD DELIVERY AT FULL LOAD STOP
(D) SETTING OF THUESTION OF MO	+
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ Rated speed rpm : 950 + Aneroid pressure
	Rated speed rpm : 950 Aneroid pressure hPa : 1200
	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0
WITH GOVERNOR  GUIDE SLEEVE TRAVEL	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0 Tolerance
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0 Tolerance cm3/1000 strokes : +- 1.0
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve	Rated speed rpm : 950  Aneroid pressure  hPa : 1200  Del. quantity  cm3/1000 strokes : 389.0  Tolerance  cm3/1000 strokes : +- 1.0  Check tolerance  cm3/1000s. : +- 6.0  Spreed
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : + 0.15	Rated speed rpm : 950  Aneroid pressure  hPa : 1200  Del. quantity  cm3/1000 strokes : 389.0  Tolerance  cm3/1000 strokes : + 1.0  Check tolerance  cm3/1000s. : + 6.0  Spreed  Tolerance
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : + 0.15  Rated speed rpm : 325	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 10.0
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : + 0.15	Rated speed rpm : 950  Aneroid pressure  hPa : 1200  Del. quantity  cm3/1000 strokes : 389.0  Tolerance  cm3/1000 strokes : +- 1.0  Check tolerance  cm3/1000s. : +- 6.0  Spreed  Tolerance  cm3/1000 strokes : 10.0  Check tolerance
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : + 0.15  Rated speed rpm : 325 guide sleeve	Rated speed rpm : 950  Aneroid pressure  hPa : 1200  Del. quantity  cm3/1000 strokes : 389.0  Tolerance  cm3/1000 strokes : +- 1.0  Check tolerance  cm3/1000s. : +- 6.0  Spreed  Tolerance  cm3/1000 strokes : 10.0  Check tolerance
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : + 0.15  Rated speed rpm : 325 guide sleeve travel mm : 2.07	Rated speed rpm : 950  Aneroid pressure  hPa : 1200  Del. quantity  cm3/1000 strokes : 389.0  Tolerance  cm3/1000 strokes : +- 1.0  Check tolerance  cm3/1000s. : +- 6.0  Spreed  Tolerance  cm3/1000 strokes : 10.0  Check tolerance
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : + 0.15  Rated speed rpm : 325 guide sleeve travel mm : 2.07 Tolerance mm : + 0.20  Rated speed rpm : 800 guide sleeve	Rated speed rpm : 950  Aneroid pressure  hPa : 1200  Del. quantity  cm3/1000 strokes : 389.0  Tolerance  cm3/1000 strokes : +- 1.0  Check tolerance  cm3/1000s. : +- 6.0  Spreed  Tolerance  cm3/1000 strokes : 10.0  Check tolerance
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : +- 0.15  Rated speed rpm : 325 guide sleeve travel mm : 2.07 Tolerance mm : +- 0.20  Rated speed rpm : 800 guide sleeve travel mm : 4.86	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance cm3/1000 strokes : 14.0
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : + 0.15  Rated speed rpm : 325 guide sleeve travel mm : 2.07 Tolerance mm : + 0.20  Rated speed rpm : 800 guide sleeve	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance cm3/1000 strokes : 10.0 Check tolerance cm3/1000s. : 14.0
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : +- 0.15  Rated speed rpm : 325 guide sleeve travel mm : 2.07 Tolerance mm : +- 0.20  Rated speed rpm : 800 guide sleeve travel mm : 4.86	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance cm3/1000 strokes : 14.0
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : + 0.15  Rated speed rpm : 325 guide sleeve travel mm : 2.07 Tolerance mm : + 0.20  Rated speed rpm : 800 guide sleeve travel mm : 4.86 Tolerance mm : + 0.25  Rated speed rpm : 345 guide sleeve travel mm : 2.33	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance cm3/1000 strokes : 14.0  CONTROL LEVER  control lever position degree : 110.0 tolerance degree : + 4.0  RATED SPEED
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : + 0.15  Rated speed rpm : 325 guide sleeve travel mm : 2.07 Tolerance mm : + 0.20  Rated speed rpm : 800 guide sleeve travel mm : 4.86 Tolerance mm : + 0.25  Rated speed rpm : 345 guide sleeve	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance cm3/1000 strokes : 14.0  CONTROL LEVER  control lever position degree : 110.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.50
WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1006 guide sleeve travel mm : 7.42 Tolerance mm : + 0.15  Rated speed rpm : 325 guide sleeve travel mm : 2.07 Tolerance mm : + 0.20  Rated speed rpm : 800 guide sleeve travel mm : 4.86 Tolerance mm : + 0.25  Rated speed rpm : 345 guide sleeve travel mm : 2.33	Rated speed rpm : 950 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 389.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance cm3/1000 strokes : 14.0  CONTROL LEVER  control lever position degree : 110.0 tolerance degree : + 4.0  RATED SPEED

rack travel mm Rated speed rpm Tolerance 1/min rack travel mm Tolerance mm Rated speed rpm	: 0.75
LOW IDLE	
control lever position degree tolerance degree	: 72.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 225
CRT mm min.	: > 6.50
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 325 : 4.70 : ← 0.10
Rated speed rpm	: 375
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 950 : 13.50 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 850 : 12.80 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 550 : 11.20 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 400 : 11.00 : + 0.20
Rated speed rpm rack travel mm Tolerance mm	: 850 : 10.80 : + 0.20
ANEROID/ALTITUDE COMPENSATOR TEST	

# SETTING Rated speed rpm : 950 Pressure hPa : 1200 rack travel mm : 13.50 Tolerance mm : +- 0.05 MEASUREMENT Pressure hPa Rated speed rpm : 850 rack travel mm : 8.10 Tolerance mm : +-0.20Pressure hPa Rated speed rpm : 350 rack travel mm : 7.30 Tolerance mm : + 0.20 Rated speed rpm : 950 Pressure hPa : 300 rack travel mm : 9.30 Tolerance mm : + 0.20 Pressure hPa : 600 rack travel mm : 10.80 Tolerance mm : + 0.20 Start interlock Rated speed rpm :> 140 Rated speed rpm : < 245 Check speed 1/min :> 120 Check speed 1/min : < 265

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	1200
Rated speed rpm	:	850
Del. quantity cm3/1000 strokes	:	382.0
Tolerance cm3/1000 strokes Check tolerance	: -	- 2.0
cm3/1000s.	: -	<b>⊢</b> 7.0

Aneroid pressure		
hPa	:	1200
Rated speed rpm	:	550
Del. quantity		
cm3/1000 strokes	:	372.0

Tolerance cm3/1000 strokes :  $\leftarrow$  3.0 Check tolerance : +- 8.0 cm3/100Gs. Aneroid pressure hPa 600 Rated speed rpm : 850 Del. quantity cm3/1000 strokes : 304.0 Tolerance cm3/1000 strokes : +- 1.5Check tolerance cm3/1000s.: +- 6.5 Aneroid pressure hPa Rated speed rpm : 850 Del. quantity cm3/1000 strokes : 207.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 6.0STARTING FUEL DELIVERY Rated speed rpm : 100 rack travel mm : 9.00 Tolerance mm :  $\leftarrow$  0.40 Del. quantity cm3/1000 strokes : 180.0 Tolerance cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s. : +- 24.0 LOW IDLE Rated speed rpm : 325 Rack travel in mm: 4.70 Toterance mm : + 0.10Del. quantity cm3/1000 strokes : 19.0 Tolerance cm3/1000 strokes : + 3.0

Check tolerance cm3/1000s. : 14.0

End of test specification sheet

Check tolerance

cm3/1000 strokes : 8.0

: +- 6.0

cm3/1000s.

Spreed Tolerance

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 07.10.94 Test oil : ISO 4113

Combination No. : 0 402 946 301

Injection pump

Pump designation : PES6P120A720LS8503 EP type number : 0 412 926 203

Governor

Governer design. : RQV300...950PA1084K

Governer no. : 0 421 815 985

Cust. part No. : 0240749202

Customer-spec. information Customer : MB-NFZ : OM447 LA Motor Power KW : 260.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 70 Tolerance l/h: + 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.85
Tolerance mm : + 0.05 Check

tolerance mm : ← 0.10

Rack travel in mm : 13.50 Tolerance mm : +- 0.50

Firing order : 6-2-4-1-5-: 3

: 0-60-120-180-240 Phasing

: -300

Start of delivery blocking

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.50 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 389.0

	Rated speed rpm : 395
Tolerance	+ guide sleeve
cm3/1000 strokes : +- 1.0	+ travel mm : 2.79
	+ Tolerance mm : +- 0.25
Check tolerance	+
cm3/1000s. : +- 6.0	Rated speed rpm : 500
	guide sleeve
Spreed	travel mm : 3.17
opi cea	Tolerance mm : + 0.25
Tolerance	T Total ance min . + 0.25
cm3/1000 strokes : 10.0	Rated speed rpm : 1169
tild/ 1000 strokes . 10.0	guide sleeve
Check tolerance	
cm3/1000s. : 14.0	
CIB7 18005. : 14.0	† Tolerance mm : +- 0.25
	1000
	Rated speed rpm : 1250
Data damandana - 700	guide sleeve
Rated speed rpm : 300	+ travel mm : 13.50
5.00	† Tolerance mm : + 0.50
Rack travel in mm: 5.00	†
Tolerance mm : + 0.10	
Del. quantity	+ GUIDE SLEEVE POSITION
cm3/1000 strokes : 19.0	†
Tolerance	+
$cm3/1000$ strokes : $\leftarrow$ 3.0	+ control lever
Check tolerance	→ position degree : - 1
$cm3/1000s.$ : $\leftarrow$ 6.0	+ Rated speed rpm : 1160
Spreed	+
Tolerance	Rack travel in mm: 12.50
cm3/1000 strokes : 8.0	† Tolerance mm : +- 2.50
Check tolerance	1
cm3/1000s. : 14.0	
	FULL LOAD DELIVERY AT FULL LOAD STOP
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 950
WITH GOVERNOR	+ Aneroid pressure
	+ hPa : 1200
	Del. quantity
GUIDE SLEEVE TRAVEL	cm3/1000 strokes : 389.0
OUTPE OFFICE THATE	+ Tolerance
Rated speed rpm : 1006	+ cm3/1000 strokes : +- 1.0
guide sleeve	+ Check tolerance
travel mm : 7.42	+ cm3/1000s. : +- 6.0
Tolerance mm : +- 0.15	Spreed
roterance man	Tolerance
Rated speed rpm : 300	+ cm3/1000 strokes : 10.0
guide sleeve	Check tolerance
travel mm : 1.69	+ cm3/1000s. : 14.0
Tolerance mm : $\leftarrow$ 0.20	†
700	†
Rated speed rpm : 790	
guide sleeve	+ CONTROL LEVER
travel mm : 4.79	†
Tolerance mm : + 0.25	+ control lever
	position degree : 110.0
Rated speed rpm : 345	tolerance degree : +- 4.0
guide sleeve	†
travel mm : 2.33	+ RATED SPEED
Tolerance mm : $+$ 0.25	+ rack travel mm : 12.50
	+ Rated speed rpm : 995

Tolerance 1/min : +- 5	+
rack travel mm : 4.00 Rated speed rpm : 1075 Tolerance 1/min : + 15	ANEROID/ALTITUDE COMPENSATOR TEST
rack travel mm : 0.75 Tolerance mm : +- 0.75 Rated speed rpm : 1250	SETTING  Rated speed rpm : 950  Pressure hPa : 1200  rack travel mm : 13.50  Tolerance mm : + 0.05
LOW IDLE	MEASUREMENT
control lever position degree : 72.0 tolerance degree : + 4.0	+ Pressure hPa : - + Rated speed rpm : 850 + rack travel mm : 8.25 + Tolerance mm : +- 0.15
Setting point w/out bumper spring	Pressure hPa : - Rated speed rpm : 350
Rated speed rpm : 200  CRT mm min. :> 6.50	rack travel mm : 7.40 Tolerance mm : +- 0.20
Testing:	Rated speed rpm : 950
Rated speed rpm : 300 rack travel mm : 5.00 Tolerance mm : + 0.10  Rated speed rpm : 370	Pressure hPa : 350 rack travel mm : 9.35 Tolerance mm : + 0.15  Pressure hPa : 600 rack travel mm : 10.75 Tolerance mm : + 0.15
TORQUE CONTROL Rated speed rpm : 950 rack travel mm : 13.50	Start interlock
rack travel mm : 13.50 Tolerance mm : + 0.05	+ Rated speed rpm : > 140 + Rated speed rpm : < 220
Rated speed rpm : 850 rack travel mm : 12.70 Tolerance mm : + 0.10	Check + speed 1/min : > 120 + Check
Rated speed rpm : 550 rack travel mm : 11.00 Tolerance mm : + 0.20	speed 1/min : < 240
Rated speed rpm : 400 rack travel mm : 10.40 Tolerance mm : + 0.20	+ FUEL DELIVERY CHARACTERISTICS +
Rated speed rpm : 850 rack travel mm : 10.75 Tolerance mm : + 0.15	hPa : 1200 Rated speed rpm : 850 Del. quantity cm3/1000 strokes : 374.0 Tolerance cm3/1000 strokes : +- 2.0 Check tolerance cm3/1000s. : +- 7.0

Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1200 : 550 : 360.0 : ← 3.0 : ← 8.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 600 : 850 : 304.0 : ← 1.5 : ← 6.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: - : 850 : 207.0 : ← 1.0 : ← 6.0
STARTING FUEL DEL	IVERY
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	
LOW IDLE	
Rated speed rpm	: 300
Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: ← 0.10 : 19.0

Check tolerance		
cm3/1000s.	: +-	6.0
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000s.	:	14.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 19.06.97 : ISO 4113

Combination No. : 0 400 876 431

Injection pump

Pump designation : PES6A95D41DRS2878

EP type number : 0 410 896 885

Governor

Governer design. : RSV350...1400A0C820L

Governer no. : 0 420 232 618

Cust. part No. : 0 220 74 8802

Customer-spec. information

Customer : MB-NFZ
Motor : 0M 366 Euro 1
Power KW : 97.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure sar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0

x length mm : 600

## REMARKS

# (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

ner values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.25 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance "NW : + 0.75

# BASIC SETTING

Rated speed rpm : 1380

Rack travel in mm : 8.75 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 74.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 3.0

C		Toterance	7 5
Spreed	†	cm3/1000 strokes	: 3.5
	†	Check tolerance	
Tolerance	+	cm3/1000s.	: 8.0
cm3/1000 strokes	: 3.5		
	1		
Check tolerance			····
	: 8.0	CONTROL LEVER	
Cap7 10003.		CONTROL LEVER	
	t	control lever	-
	+	position degree	
Rated speed rpm	: 350 <del>↓</del>	tolerance degree	: +- 4.0
•	<u> </u>	•	
Rack travel in mm	: 4.50		
Tolerance mm		ASSEMBLY GOVERNOR	SETTING
Del. quantity	0.10	ASSEMBET GOVERNOR	2E111140
	. 10.0	5	4/07
cm3/1000 strokes	: 10.0 +	Rated speed rpm	
Tolerance	_ +	rack travel mm	: 7.75
cm3/1000 strokes	: <del>+</del> 2.0 +		
Check tolerance	1	Rated speed rpm	: 1468
cm3/1000s.	: + 4.5	Tolerance 1/min	
Spreed		rack travel mm	
• • • •	Ť	I GUN LI AVEL IIIII	. 4.00
Tolerance		maral 1	4 00
cm3/1000 strokes	: 5.5	rack travel mm	: 1.00 : +- 0.70
Check tolerance	+	Tolerance mm Rated speed rpm	: +- 0.70
cm3/1000s.	: 9.0 <del>}</del>	Rated speed rpm	: 1600
	1		
	1		
(B) SETTING OF INJ	ECTION PLIMP	Rated speed rpm	• 1/2/
WITH GOVERNOR	1011014 10111	rack travel mm	. 7 75
MILL GOVERNOR	Ť	rack travel mm	: (./5
	†		
	+	Rated speed rpm	: 1469
		Tolerance 1/min	: <del>←</del> 6
GUIDE SLEEVE POSIT	ION 1	rack travel mm	
	1		
	<del>-</del>	rack travel mm	• 1.00
control lever	Ī	rack travel mm	
control lever		Tolerance mm	: +- 0.70
position degree			: +- 0.70
position degree	: -3 : 800	Tolerance mm	: +- 0.70
position degree Rated speed rpm	: 800	Tolerance mm Rated speed rpm	: +- 0.70 : 1600
position degree	: 800	Tolerance mm	: +- 0.70 : 1600
position degree Rated speed rpm	: 800	Tolerance mm Rated speed rpm	: +- 0.70 : 1600 : 1425
position degree Rated speed rpm Rack travel in mm	: 0.65	Tolerance mm Rated speed rpm Rated speed rpm	: +- 0.70 : 1600 : 1425
position degree Rated speed rpm Rack travel in mm Tolerance mm	: 0.65	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm	: + 0.70 : 1600 : 1425 : 7.75
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring	: 0.65	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm	: + 0.70 : 1600 : 1425 : 7.75 : 1470
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension	: 800 : 0.65 : + 0.35	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring	: 800 : 0.65 : + 0.35	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm	: + 0.70 : 1600 : 1425 : 7.75 : 1470
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension	: 800 : 0.65 : + 0.35	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm	: +- 0.70 : 1600 : 1425 : 7.75 : 1470 : +- 6 : 4.00
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x	: 800 : 0.65 : + 0.35 : 4.50	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : 1.00
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension	: 800 : 0.65 : + 0.35 : 4.50	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : + 0.70
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x	: 800 : 0.65 : + 0.35 : 4.50	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm rack travel mm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : + 0.70
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : + 0.70
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY Rated speed rpm	: 800 : 0.65 : + 0.35 : 4.50	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm rack travel mm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : + 0.70
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP	Tolerance mum Rated speed rpm Rated speed rpm rack travel mum Rated speed rpm Tolerance 1/min rack travel mum rack travel mum Tolerance mum Rated speed rpm Rated speed rpm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : + 0.70 : 1600
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Rated speed rpm Rated speed rpm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : + 0.70 : 1600 : 1426
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP : 1380 : -	Tolerance mum Rated speed rpm Rated speed rpm rack travel mum Rated speed rpm Tolerance 1/min rack travel mum rack travel mum Tolerance mum Rated speed rpm Rated speed rpm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : 1.00 : + 0.70 : 1600 : 1426
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP : 1380 : -	Tolerance mm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Rated speed rpm Rated speed rpm Rated speed rpm Rated speed rpm rack travel mm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : 1.00 : + 0.70 : 1600 : 1426 : 7.75
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP : 1380 : -	Tolerance mm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Rated speed rpm Rated speed rpm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : + 0.70 : 1600 : 1426
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP : 1380 : - : 74.0	Tolerance mm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Rated speed rpm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : 1.00 : + 0.70 : 1600 : 1426 : 7.75 : 1471
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP : 1380 : - : 74.0	Rated speed rpm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Rated speed rpm Rated speed rpm Rated speed rpm Rated speed rpm rack travel mm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : 1.00 : + 0.70 : 1600 : 1426 : 7.75 : 1471 : + 6
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP : 1380 : - : 74.0 : + 1.0	Tolerance mm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Rated speed rpm	: + 0.70 : 1600 : 1425 : 7.75 : 1470 : + 6 : 4.00 : + 0.70 : 1600 : 1426 : 7.75 : 1471 : + 6
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP : 1380 : - : 74.0	Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Rated speed rpm rack travel mm	: + 0.70 : 1600 : 1425 : 7.75 : 4470 : + 6 : 4.00 : + 0.70 : 1600 : 1426 : 7.75 : 1471 : + 6 : 4.00
position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 800 : 0.65 : + 0.35 : 4.50 AT FULL LOAD STOP : 1380 : - : 74.0 : + 1.0	Rated speed rpm Rated speed rpm Rated speed rpm rack travel mm Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Rated speed rpm Rated speed rpm Rated speed rpm Rated speed rpm rack travel mm	: + 0.70 : 1600 : 1425 : 7.75 : 4470 : + 6 : 4.00 : + 0.70 : 1600 : 1426 : 7.75 : 1471 : + 6 : 4.00

Tolerance

Tolerance mm	: +- 0.70
Rated speed rpm	: 1600
Rated speed rpm	: 1427
rack travel mm	: 7.75
Rated speed rpm Tolerance 1/min rack travel mm	
rack travel mm	: 1.00
Tolerance mm	: ← 0.70
Rated speed rpm	: 1600
Rated speed rpm	: 1428
rack travel mm	: 7.75
Rated speed rpm	: 1473
Tolerance 1/min	: +- 6
rack travel mm	: 4.00
rack travel mm	: 1.00
Tolerance mm	: +- 0.70
Rated speed rpm	: 1600
LOW IDLE	
control lever position degree tolerance degree	: 80.0 : +- 4.0
	: +- 4.0
Testing:	: 4.0
Testing: Rated speed rpm rack travel mm Tolerance mm	: 350 : 4.50 : + 0.10
Rated speed rpm	: 350
rack travel mm	: 4.50
Rated speed rpm rack travel mm Tolerance mm rack travel mm Rated speed rpm	: 350 : 4.50 : +- 0.10 : 2.00 : 420 : +- 30
Rated speed rpm	: 350
rack travel mm	: 4.50
Tolerance mm	: +- 0.10
rack travel mm	: 2.00
Rated speed rpm	: 420
Tolerance 1/min	: +- 30
Rated speed rpm	: 350
rack travel mm	: 4.50
Tolerance mm	: + 0.10
rack travel mm	: 2.00
Rated speed rpm	: 420
Tolerance 1/min	: + 30
SET IDLE AUXILIAR	Y SPRING
Rated speed rpm	: 420

neroid pressure				
nPa Rated speed rpm	:		500	
el. quantity				
:m3/1000 strokes Tolerance	:		57.0	
m3/1000 strokes	:	+	2.0	
Check tolerance			/ 0	
:m3/1000s.	:	+	4.0	
STARTING FUEL DEL	IVE	ERY		
Rated speed rpm			100	
rack travel mm Tolerance mm	:	_	11.00	
el. quantity	•		0.20	
m3/1000 strokes	:		88.0	
olerance m3/1000 strokes	:	<b>+</b>	7.5	
heck tolerance				
:m3/1000s.	:	+	10.0	
OW IDLE				
ated speed rpm	:		350	
ack travel in mm	:		4.50	
olerance mm el. quantity	:	+-	0.10	
m3/1000 strokes	:		10.0	
olerance m3/1000 strokes	:	+	2.0	
heck tolerance	•	, - ′		
m3/1000s.	:	+-	4.5	
preed Olerance				
m3/1000 strokes	:		5.5	
heck tolerance			<b>a</b> n	
n3/1000s.	:		9.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 28.08.96 : ISO 4113

Combination No. : 0 402 646 992

Injection pump

Pump designation : PE6P120A720RS7021 EP type number : 0 412 626 869

Governor

Governer design. : RQ200/1000PA1036 : 0 421 801 649 Governer no.

Cust. part No. : 1363610

Customer-spec. information Customer : SCANIA Motor : DSI11E01

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C 40 Tolerance °C 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 104 assembly

Opening pressure

251.5 : +- 1.5 Tolerance bar

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05 : +- 0.05 Tolerance mm Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

: 4

: 0-60-120-180-240 Phasing

: -300

: **←** 0.30 Tolerance

Check

: +- 0.50 tolerance \*NW

Start of delivery mark

Tolerance : ← 0.10

Check

tolerance °NW : +- 0.50

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

	1
Rack travel in mm : 13.45 Tolerance mm : ← 0.05	GUIDE SLEEVE POSITION
Rated speed rpm : 250  Rack travel in mm : 6.30	control lever position degree : 102 Rated speed rpm : 600
Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 31.0 Tolerance	Rack travel in mm : 16.50 Tolerance mm : +- 1.30
cm3/1000 strokes : +- 3.0 Check tolerance	CONTROL LEVER
cm3/1000s. : 6.0 Spreed Tolerance	control lever position degree : 43.0
cm3/1000 strokes : 4.0 Check tolerance	tolerance degree : + 4.0
cm3/1000s. : 8.0	<pre>control lever position degree : 98.0 tolerance degree : + 4.0</pre>
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ RATED SPEED + rack travel mm : 12.40 + Rated speed rpm : 1045
GUIDE SLEEVE TRAVEL	Tolerance 1/min : +- 5  + Check
Rated speed rpm : 1054 guide sleeve	speed 1/min : +- 10
travel mm : 4.39 Tolerance mm : +- 0.10	rack travel mm : 4.00 Rated speed rpm : 1185 Tolerance 1/min : +- 15
Rated speed rpm : 250 guide sleeve travel mm : 1.08	+ Check + speed 1/min : + 20
Tolerance mm : + 0.10	rack travel mm : 0.50 Tolerance mm : + 0.50
Rated speed rpm : 1000 guide sleeve travel mm : 4.00	+ Rated speed rpm : 1300 +
Tolerance mm : → 0.10	
Rated speed rpm : 353 guide sleeve travel mm : 3.46	LOW IDLE
Tolerance mm : + 0.10	control lever position degree : 66.0
Rated speed rpm : 420 guide sleeve	+ tolerance degree : +- 4.0 +
travel mm : 4.00 Tolerance mm : + 0.10	<ul><li>control lever</li><li>position degree : 11.0</li><li>tolerance degree : + 4.0</li></ul>
Rated speed rpm : 1460 guide sleeve travel mm : 11.50	Setting point w/out bumper spring
Tolerance mm : + 0.50	Rated speed rpm : 150
	CRT mm min. :> 8.50

## Testing:

Rated speed rpm	:	250
rack travel mm	:	6.30
Tolerance mm	: +-	0.10

rack travel mm : 2.00
Rated speed rpm : 350
Tolerance 1/min : + 30

TORQUE CONTROL
Rated speed rpm : 700
rack travel mm : 13.45
Tolerance mm : ← 0.05

Rated speed rpm : 1000 rack travel mm : 13.45 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm	:	500
Pressure hPa	:	1500
rack travel mm	:	13.45
Tolerance num	:	→ 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 12.90
Tolerance mm : +- 0.20

**MEASUREMENT** 

Rated speed rpm : 500

Pressure hPa : 235 rack travel mm : 13.25 Tolerance mm : + 0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 1000

Del. quantity

cm3/1000 strokes : 227.0

Tolerance

cm3/1000 strokes : + 4.0

Check tolerance

cm3/1000s. : +- 6.0

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 268.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 4.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 12.90 Tolerance mm : + 0.20

Del. quantity

cm3/1000 strokes : 230.0

Tolerance -

cm3/1000 strokes : +- 20.0

Check tolerance

cm3/1000s. : +- 24.0

#### LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 6.30 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 31.0

Tolerance

cm3/1000 strokes : +- 3.0 Check tolerance

6.0

cm3/1000s. : +-

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. : 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 18.03.94 Test oil : ISO 4113

Combination No. : 0 401 846 900

Injection pump

Pump designation : PE6P120A320RS3240 EP type number : 0 411 826 786

Governor

Governer design. : RQV250...1025PA921

: -16

Governer no. : 0 421 813 799

Cust. part No. : 478378-P02

Customer-spec. information

Customer : VOLVO-TRUCK
Motor : TD122FL
Power KW : 298.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper

(RoBo diaphragm): 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 457 413 046

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rack travel in mm : 6.60 Tolerance mm : +- 0.10

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control Lever

position degree : - 1 Rated speed rpm : 1100

Rack travel in mm: 16.50 Tolerance mm : ← 1.30

#### CONTROL LEVER

control lever

position degree : 65.0 tolerance degree : + 4.0

control Lever

position degree : 120.0 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.65 Rated speed rpm : 1070
Tolerance 1/min : + 5

rack travel mm : 4.00 Rated speed rpm : 1155 Tolerance 1/min : + 15

## LOW IDLE

control lever

position degree : 64.0 tolerance degree : + 4.0

control lever

position degree : 9.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. ; > 8.10

Testing:

Rated speed rpm : 250 rack travel mm : 6.60 Tolerance mm : +- 0.10

Rated speed rpm : 315

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500 Pressure hPa : 1200 rack travel mm : 13.65
Tolerance mm : +- 0.05

Rated speed rpm : 500 Pressure hPa rack travel mm : 9.70
Tolerance mm : + 0.10

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 780 rack travel mm : 3.30 Tolerance mm : +- 0.10

Pressure hPa : 90 rack travel mm : 0.25 Tolerance mm : + 0.05

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

Rated speed rpm : 700 Del. quantity

cm3/1000 strokes : 155.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity

cm3/1000 strokes : 290.0

Tolerance

cm3/1000 strokes : +- 20.0

Check tolerance cm3/1000s. : + 24.0

LOW IDLE

Rack travel in mm : 6.60Tolerance mm : + 0.10

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 22,12,95 : ISO 4113

Combination No. : 0 402 776 819

Injection pump

Pump designation : PES6P120A320LS7285 EP type number : 0 412 726 892

Governor

Governer design. : RSV350...1100P1A601

Governer no. : 0 421 833 482

Cust. part No. : 1823388091

Customer-spec. information Customer : NAVISTAR : DTA-531 Motor Power KW : 222.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : : + 0.1 Tolerance bar

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm 2.90 : +- 0.05 Tolerance mm Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 : +- 1.50 Tolerance mm

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

Tolerance : +- 0.50

Check

tolerance °NW : +- C.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.25 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 216.0

Tolerance cm3/1000 strokes	: +- 1.0	Spreed Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000s.	: + 4.0	Check tolerance cm3/1000s. : 9.0
Spreed		
Tolerance cm3/1000 strokes	: 5.0	CONTROL LEVER
Check tolerance cm3/1000s.	: 9.0	control lever position degree : 103.0 tolerance degree : +- 4.0
Rated speed rpm	: 350	RATED SPEED rack travel mm : 12.20 Rated speed rpm : 1150 Tolerance 1/min : +- 5
Rack travel in mm Tolerance mm Del. quantity	: 5.50 : + 0.10	Tolerance 1/min : + 5  rack travel mm : 4.00  Rated speed rpm : 1200
cm3/1000 strokes Tolerance	: 33.5	Tolerance 1/min : + 5
cm3/1000 strokes Check tolerance cm3/1000s.	: + 3.0 : + 5.0	rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1250
Spreed	· 3.0	
Tolerance cm3/1000 strokes Check tolerance	: 8.0	rack travel mm : 4.00 Rated speed rpm : 1205 Tolerance 1/min : +- 5
cm3/1000s.	: 12.0	
(B) SETTING OF IN. WITH GOVERNOR	JECTION PUMP	LOW IDLE
GUIDE SLEEVE POSI	TION	<pre>control lever position degree : 72.5 tolerance degree : +- 4.0</pre>
control lever position degree	: - 1	Setting point w/out bumper spring
governor spring	1	Rated speed rpm : 100
pre-tension click setting x	: 3.25	CRT mm min. : > 19.00
	<u> </u>	Testing:
FULL LOAD DELIVERY	Y AT FULL LOAD STOP	Rated speed rpm : 350 rack travel mm : 5.50
Rated speed rpm Aneroid pressure	+	rack travel mm : 5.50 Tolerance mm : + 0.10
hPa Del. quantity cm3/1000 strokes	: 1500	TORQUE CONTROL Rated speed rpm : 1100
Tolerance cm3/1000 strokes	+	rack travel mm : 13.25 Tolerance mm : + 0.05
Check tolerance cm3/1000s.	: +- 4.0	

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm	:	400
Pressure hPa	:	1500

Rated speed rpm : 400
Pressure hPa : rack travel mm : 8.30
Tolerance mm : +- 0.20

## **MEASUREMENT**

Rated speed rpm : 400

Pressure hPa : 1035
rack travel mm : 11.90
Tolerance mm : + 0.20

Pressure hPa : 450 rack travel mm : 9.30 Tolerance mm : + 0.05

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 106.5
Tolerance

cm3/1000 strokes : + 2.0 Check tolerance

cm3/1000s. : + 4.0

# STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 1.00
Del. quantity
cm3/1000 strokes : 167.5
Tolerance
cm3/1000 strokes : + 20.0
Check tolerance
cm3/1000s. : + 25.0

## LOW IDLE

Rated speed rpm	:	350	
Rack travel in mm Tolerance mm Del. quantity	: +-	5.50 0.10	
cm3/1000 strokes	:	33.5	
Tolerance cm3/1000 strokes	: +-	3.0	
Check tolerance cm3/1000s.	: +-	5.0	
Spreed Tolerance			
cm3/1000 strokes	:	8.0	
Check tolerance cm3/1000s.	:	12.0	

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 31.07.97 Test oil : ISO 4113

Combination No. : 0 400 876 420

Injection pump

Pump designation : PES6A90D410RS2757 EP type number : 0 410 896 086

Governor

Governer design. : RSV425...1000A1C2266

: L

Governer no. : 0 420 232 598

Cust. part No. :

Customer-spec. information Customer : IVECO-FIAT

Motor : 8065.25.080

#### TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C

40

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.30 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm: 11.80 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 90.5

F01

1	Del. quantity
Tolerance cm3/1000 strokes : + 0.5	cm3/1000 strokes : 90.5 Tolerance
Check tolerance	cm3/1000 strokes : +- 0.5 Check tolerance
cm3/1000s. : + 2.5	cm3/1000s. : +- 2.5 Spreed
Spreed	Tolerance cm3/1000 strokes : 3.0
Tolerance	Check tolerance
cm3/1000 strokes : 3.0	cm3/1000s. : 5.0
Check tolerance cm3/1000s. : 5.0	CONTROL LEVER
+	control lever
Rated speed rpm : 475	position degree : 93.0
Rack travel in mm: 6.90	tolerance degree : +- 4.0
Tolerance mm : + 0.10	RATED SPEED
Del. quantity	rack travel mm : 10.80
cm3/1000 strokes : 13.0 + Tolerance +	Rated speed rpm : 1045 Tolerance 1/min : +- 5
cm3/1000 strokes : + 3.0	Totalite Militi . 15
Check tolerance	rack travel mm : 4.00
cm3/1000s. : + 5.0 + 5.0	Rated speed rpm : 1105 Tolerance 1/min : +- 15
Tolerance	Toterance Thirth : +- 15
cm3/1000 strokes : 2.5	rack travel mm : 0.85
Check tolerance	Tolerance mm : +- 0.55
cm3/1000s. : 4.5	Rated speed rpm : 1240
+	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1135
WITH GOVERNOR	Tolerance 1/min : ← 15
GUIDE SLEEVE POSITION	LOUIDIE
Ī	LOW IDLE
control lever	
position degree : -3 + Rated speed rpm : 200 +	control lever pcsition degree : 67.0
Tated speed / piii	tolerance degree : +- 4.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Setting point w/out bumper spring
governor spring	Rated speed rpm : 475
pre-tension +	rack travel mm : 6.40
click setting $x$ : 4.75	Tolerance mm : +- 0.10
	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 19.50
Rated speed rpm : 1000	CIAT HIMIT HITE . ~ 17.JU
Aneroid pressure	Testing:
hPa : 900	Rated speed rpm : 475
Т	nated speed (pill . 41)

Tolerance mm	: 6.90 : +- 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 650 : +- 30

TORQUE CONTROL		
Rated speed rpm	:	1000
rack travel mm	:	11.80
Tolerance mm	: -	→ 0.05

Rated speed rpm	:	1000
rack travel mm	:	12.30
Tolerance mm	:	<b> 0.10</b>

Rated	speed	rpm	:	500
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# ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm	:	1000
Pressure hPa	:	900
rack travel mm	:	11.30
Tolerance mm	: -	<b>⊢</b> 0.10

Rated speed rpm	:	1000	
Pressure hPa	:	900	
rack travel <b>mm</b>	:	11.80	
Tolerance mm	:	+− 0.05	

# **MEASUREMENT**

Rated	speed	rpm	:	1000
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# STARTING FUEL DELIVERY

Rated speed rpm rack travel mm Tolerance mm	: 100 : 20.25 : + 0.75
Del. quantity cm3/1000 strokes Tolerance	: 90.0
cm3/1000 strokes	: +- 5.0
Check tolerance cm3/1000s.	: <del>←</del> 8.0

# LOW IDLE

Rated speed rpm		475	
Rack travel in mm Tolerance mm Del. quantity	:		. 90 . 10
cm3/1000 strokes Tolerance	:	1:	3.0
cm3/1000 strokes Check tolerance	:	+- ;	3.0
cm3/1000s.	:	+- !	5.0
Spreed Tolerance cm3/1000 strokes			2.5
Check tolerance	•	`	
cm3/1000s.	:	4	4.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 31.07.97 : ISO 4113

Combination No. : 0 400 876 432

Injection pump

Pump designation : PES6A90D410RS2757 EP type number : 0 410 896 086

Governor

Governer design. : RSV425...1000A1C2266

: L

Governer no. : 0 420 232 598

Cust. part No. : 112069

Customer-spec. information

Customer : IVECO-FIAT : 8065.25.080 Motor

## TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C : 40 Tolerance  $^{\circ}C$ : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.30 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300 Tolerance : **←** 0.50

Check

tolerance 'NW : ← 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.80 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 90.5

	-	† Del. quantity
Tolerance cm3/1000 strokes	: ← 0.5	- cm3/1000 strokes : 90.5 - Tolerance - cm3/1000 strokes : +- 0.5
Check tolerance cm3/1000s.	: +- 2.5	Check tolerance cm3/1000s. : +- 2.5
Spreed	-	Spreed Tolerance cm3/1000 strokes : 3.0
Tolerance cm3/1000 strokes	: 3.0	cm3/1000 strokes : 3.0 Check tolerance cm3/1000S. : 5.0
Check tolerance cm3/1000s.	: 5.0	
	-	CONTROL LEVER
Rated speed rpm	-	control lever position degree : 93.0 tolerance degree : + 4.0
Rack travel in mm Tolerance mm	: 6.90 - : + 0.10 -	RATED SPEED
Del. quantity cm3/1000 strokes Tolerance	-	rack travel mm : 10.80 Rated speed rpm : 10.45 Tolerance 1/min : + 5
cm3/1000 strokes	: + 3.0	+
Check tolerance cm3/1000s. Spreed	: +- 5.0	rack travel mm : 4.00 Rated speed rpm : 1105 Tolerance 1/min : +- 15
lolerance cm3/1000 strokes Check tolerance	·	rack travel mm : 0.85 Tolerance mm : + 0.55
cm3/1000s.	: 4.5	Rated speed rpm : 1240
(B) SETTING OF INJ WITH GOVERNOR	ECTION PUMP -	rack travel mm : 4.00 Rated speed rpm : 1135 Tolerance 1/min : +- 15
GUIDE SLEEVE POSIT	ION -	
	- -	LOW IDLE
control lever position degree Rated speed rpm	: - 3 : 800	control lever position degree : 67.0 tolerance degree : +- 4.0
Rack travel in mm Tolerance mm		Setting point w/out bumper spring
governor spring pre-tension click setting x	: 4.75	Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : + 0.10
		Rated speed rpm : 100
	AT FULL LOAD STOP	CRT mm min. : > 19.50
Rated speed rpm Aneroid pressure	4	Testing:
hPa	: 900 -	Rated speed rpm : 475

rack travel mm	: 6.90
Tolerance mm	: + 0.10
rack travel mm	: 2.00
Rated speed rpm	: 650
Tolerance 1/min	: + 30

TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	:	1000 11.80 ⊢ 0.05
Rated speed rpm	:	1000

Rated speed rpm	:	7000
rack travel mm	:	12.30
Tolerance mm	:	<b>←</b> 0.10

Rated speed	rpm	:	590
-------------	-----	---	-----

# ANEROID/ALTITUDE COMPENSATOR TEST

# SETTING

Rated speed rpm	:	1000
Pressure hPa	:	900
rack travel mm	:	11.30
Tolerance mm	: +	-0.10

Rated speed rpm	:	1000
Pressure hPa	:	900
rack travel mm	:	11.80
Tolerance mm	: +	-0.05

# MEASUREMENT

Rated speed rpm : 1000

# STARTING FUEL DELIVERY

Rated speed rpm rack travel mm	: 100 : 20.25	
Tolerance mm	: + 0.75	
Del. quantity cm3/1000 strokes	: 90.0	
Tolerance cm3/1000 strokes	: +- 5.0	
Check tolerance cm3/1000s.	: +- 8.0	

LOW IDLE

F06

Rated speed rpm	:		475
Rack travel in mm Tolerance mm Del. quantity	:	+-	6.90 0.10
cm3/1000 strokes	:		13.0
Tolerance cm3/1000 strokes	:	+-	3.0
Check tolerance cm3/1000s.	:	+-	5.0
Spreed Tolerance			
cm3/1000 strokes Check tolerance	:		2.5
cm3/1000s.	:		4.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 09.06.94 : ISO 4113

Combination No. : 0 402 776 810

Injection pump

Pump designation : PES6P120A720RS7255 EP type number : 0 412 726 881

Governor

Governer design. : RSV475...1050P0A547

: -1

Governer no.

: 0 421 833 380

Cust. part No. : RE46181

Customer-spec. information Customer : DEERE

Motor

: 6101 AT012

Power KW

: 209.0

### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40 : + 2.0 Tolerance °C

Overflow valve : 2 417 413 079

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 145 Tolerance l/h : + 10.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

208.5

Tolerance bar

: +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0

x length mm : 600

### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : +- 1.0

: 3.60 : + 0.05 Prestroke mm Tolerance mm

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

### BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.75

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 208.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: +- 4.0

Spreed

F07

har

Toterance cm3/1000 strokes : 5.0	+ Rated speed rpm : 1095 + Tolerance 1/min : +- 5
Check tolerance	t rack travel mm · 400
cm3/1000s. : 9.0	rack travel mm : 4.00 Rated speed rpm : 1185
	+ Tolerance 1/min : + 5
	†
	rack travel mm : 0.85
Rack travel in mm: 5.00	Tolerance mm : +- 0.55 + Rated speed rpm : 1300
Tolerance mm : + 0.10	T Naced speed (pill) : 1500
	rack travel mm : 4.00
	rack travel mm : 4.00 Rated speed rpm : 1195 Tolerance 1/min : + 15
(B) SETTING OF INJECTION PUMP	+ Tolerance 1/min : + 15
WITH GOVERNOR	‡
GUIDE SLEEVE POSITION	LOW IDLE
00252 002572 1 00212011	
control lever	t control lever
position degree : - 3	position degree : 36.0
Rated speed rpm : 800	tolerance degree : + 4.0
	+
Rack travel in mm : 0.50 Tolerance mm : + 0.20	+ Setting point w/out bumper spring
	+ Rated speed rpm : 475
governor spring	rack travel mm : 5.50
pre-tension click setting x : 5.00	† Tolerance mm : + 0.10
ttick setting x : 5.00	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 19.00
FOLL LOAD DELIVER! AT FOLL LOAD STOP	+ CRI man min. : > 19.00
Rated speed rpm : 1050	† Testing:
Aneroid pressure	t Dated aread non 175
hPa : 1500 Del. quantity	Rated speed rpm : 475
cm3/1000 strokes : 208.0	+ rack travel mm : 5.00 + Tolerance mm : + 0.10
Tolerance	1000141100 41111
cm3/1000 strokes : + 1.0	+
Check tolerance	+ TORQUE CONTROL
cm3/1000s. : - 4.0	Rated speed rpm : 1050
Spreed	rack travel mm : 11.75 Tolerance mm : + 0.05
Tolerance	† Tolerance mm : + 0.05
cm3/1000 strokes : 5.0 Check tolerance	Rated speed rpm : 700
cm3/1000S. : 9.0	+ Rated speed rpm : 700 + rack travel mm : 12.30
· 7.0	Tolerance mm : + 0.10
	+
CONTROL LEVER	ANEDOTO (AL TITUDE
CONTROL LEVER	+ ANEROID/ALTITUDE + COMPENSATOR TEST
control lever	+
position degree : 54.0	+
tolerance degree : +- 4.0	SETTING
DATEN SPEEN	Pated speed nom . 500
RATED SPEED rack travel mm : 10.70	+ Rated speed rpm : 500 + Pressure hPa : 1500
I GON LI GYEL IIIII . IU.IU	i ressure in a . 1500

rack travel mm : 12.30 Tolerance mm : + 0.10

Rated speed rpm 500 Pressure hPa rack travel mm 11.20 Tolerance mm : ← 0.10

**MEASUREMENT** 

500 Rated speed rpm

875 Pressure hPa rack travel mm 11.65 : **←** 0.05 Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

: 1500 hPa Rated speed rpm : 700

Del. quantity

cm3/1000 strokes : 218.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0 Check tolerance

cm3/1000s. : +- 6.0

Aneroid pressure

hPa Rated speed rpm 500

Del. quantity

cm3/1000 strokes : 184.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 105.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

cm3/1000s. : +- 25.0

LOW IDLE

F09

Rack travel in mm: 5.00 Tolerance mm : + 0.10

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 25,07,97 : ISO 4113

Combination No. : 0 402 796 812

Injection pump

Pump designation : PES6P120A720RS7315

EP type number : 0 412 726 902

Governor

Governer design. : RE30

Governer no.

: 0 421 890 017

Cust. part No. : RE 57373

Customer-spec. information

Customer

: DEERE

Motor

: 6081

Power KW

: 205.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C

40

Tolerance \*C

: + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar :

Tolerance bar

: +- 0.1

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

bar

208.5

Tolerance bar

: +- 1.5

Test lines

: 1 680 750 089

Outside diameter : 8.0

Firing order

Phasing

Check

x inside diameter :

x length mm :

Pump-specific values in Section (B)

(A) INJECTION PUMP SETTINGS

Setting of constant delivery

Tolerance bar : +- 1.0

must be observed!

No basic setting.

under Section C.

Prestroke mm

Tolerance mm

tolerance mm

Tolerance mm

Rack travel in mm :

BEGINNING OF DELIVERY

Test pressure bar :

REMARKS

3.0

26.0

3,60

: +- 0.05

: +- 0.10

: 4

: -300

10.50 : +- 1.50

: 1-5-3-6-2-

: 0-60-120-180-240

600

(B) POSITIONER TESTING Warm-up time: 3 minutes at

n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR

Engine speed min-1:

Setting point

(P, R and H pump)

Uact V

**POSITION** 

3,100

CRT mm

: 13.00

0

F10

Tolerance mm : $+/-0.05$	+ (All P and R pumps not
Check	+ H and M pumps)
tolerance mm : +/- 0.10	
	+ Test with control rod
Check value	in stop position
(P, R and H pump)	T in stop position
Cr, R and n pullip)	Toring and the control of the contro
	Engine speed min-1: 60
	Amplitude V : 1.4 Tolerance V : +/- 0.6
Uact V : 1.700 CRT mm : 6.15	† Tolerance V : +/- 0.6
CRT mm : 6.15	+ Check
Tolerance mm : +/- 0.25	† tolerance V : +/- 1.20
Check	+
tolerance mm : $\pm -0.30$	+ Engine speed min-1: 600
	+ Difference
	Amplitude to
Setting point	Amplitude V : max.1.4
(M pump)	Amperedae v . max.1.4
(1) ballos	T
11aab 14 - 7 400	Ť
Uact V : 3.100 CRT mm : 12.50	
	(C) INJECTION PUMP WITH POSITIONER
Tolerance mm : +/- 0.05	†
Check	+ FUEL DELIVERY CHARACTERISTICS
tolerance mm : +/- 0.10	+
Check value	+ Rated speed rpm : 700
(M pump)	+ Uact V : 2.940
	Del. quantity
Uact V : 1.790 CRT mm : 5.50	- cm3/1000 strokes : 237.0
CRT mm : 5.50	+ Tolerance
CRT mm : 5.50 Tolerance mm : +/- 0.25	cm3/1000 strokes : + 3.0
Check	+ Check tolerance
tolerance mm : +/- 0.30	+  cm3/1000s. + 6.0
A. A.	+ Spreed
Stop position	† Tolerance
(P, R and H pump)	+ cm3/1000 strokes : 8.0
	+ Check tolerance
Uact V : Value with	+ cm3/1000s. : 12.0
deenergised adjusting magnet	+
and control rod in	+ TEST POINT L1
stop position.	
CRT mm : 0.75	Rated speed rpm : 450
Tolerance mm : +/- 0.25	+ Uact V : 1.590
Check	Tolerance Volt : +- 0.060
tolerance mm : +/- 0.35	
COLETATIVE NATI	+ Check tolerance
Chan manihi	+ Volt : + 0.060
Stop position	+ Del. quantity
(M pump)	+ cm3/1000 strokes : 26.0
Uact V : 0,720	+ Tolerance
Tolerance Volt : + 0,065	+ cm3/1000 strokes : +- 3.0
CRT mm : 1,00	+ Spreed
	+ Tolerance
Starting position	+ cm3/1000 strokes : 6.0
(M pump)	+ Check tolerance
Uact V : 4,500	+ cm3/1000s. : 10.0
Tolerance Volt : + 0,115	10.0
CRT mm : 19,00	
Tolerance mm : +- 0,80	STARTING FUEL DELIVERY
roter ance man . TO U,OU	I STANTING FOEL DELTACKI
	T Dated around 100
ENCINE COECA CENCAD	+ Rated speed rpm : 100
ENGINE-SPEED SENSOR	+ Uact V : 4.600

Del. quantity cm3/1000 strokes : 115.0

Tolerance cm3/1000 strokes : +- 20.0

Check tolerance cm3/1000s. : **←** 25.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 19.08.97 : ISO 4113

Combination No. : 0 402 646 970

Injection pump

Pump designation : PE6P12OA32ORS7248

: -10Y

EP type number : 0 412 626 902

Governor

Governer design. : RQV275...1150PA986

Governer no.

: 0 421 813 920

Cust. part No. : 1248046/4

Customer-spec. information

: DAF Customer

Motor : RS 180 L

Power KW

: 180.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve

: 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : + 0.1

Overflow quantity

min. L/h : 130 Tolerance L/h : + 10.0

Test nozzle holde assembly

: 1 688 901 105

Opening pressure

: 208.5

Tolerance bar : + 1.5

F13

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter :

3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 5.25

: +- 0.05 Tolerance mm

Check

tolerance mm : ← 0.10

Rack travel in mm: 10.75

Tolerance mm : +- 0.50

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.30

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

1	
Rack travel in mm: 10.75 Tolerance mm: + 0.05	Rated speed rpm : 315 guide sleeve
<u> </u>	travel mm : 1.98
Del. quantity cm3/1000 strokes : 147.5	Tolerance mm : +- 0.25
	Rated speed rpm : 365
Tolerance +	guide sleeve
cm3/1000 strokes : +- 1.0	travel mm : 2.52
+	Tolerance mm : +- 0.25
Check tolerance	•
cm3/1000s. : + 4.0	Rated speed rpm : 450
	guide sleeve
Spreed	travel mm : 3.07
	Tolerance mm : +- 0.25
Tolerance	. O.L.J
cm3/1000 strokes : 5.0	Rated speed rpm : 1500
5.9	guide sleeve
Check tolerance	_
· ·	
cm3/1000s. : 9.0	Tolerance mm : +- 0.50
	•
†	CUITAGE OF STUDE CONTINUE
7.4.1	GUIDE SLEEVE POSITION
Rated speed rpm : 275	
1	
Rack travel in mm: 4.70	control lever
Tolerance mm : + 0.10	position degree : - 1
Del. quantity	Rated speed rpm : 1340
cm3/ $1000$ strokes : $16.0$	
Tolerance	Rack travel in mm : 9.70
cm3/1000  strokes : + 3.0	Tolerance mm : +- 1.30
Check tolerance +	
cm3/1000s. : +- 6.0	
Spreed	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	•
cm3/1000 strokes : 8.0	Rated speed rpm : 1000
Check tolerance	Aneroid pressure
cm3/1000s. : 12.0	hPa : 1000
+	Del. quantity
1	cm3/1000 strokes : 147.5
(B) SETTING OF INJECTION PUMP	Tolerance
WITH GOVERNOR	cm3/1000 strokes : +- 1.0
	Check tolerance
	cn/3/1000s. : +- 4.0
GUIDE SLEEVE TRAVEL	Spreed
T	Tolerance
Rated speed rpm : 1206	cm3/1000 strokes : 5.0
guide sleeve	Check tolerance
travel mm : 8.25	714000
	cm3/1000S. : 9.0
Tolerance mm : $\leftarrow$ 0.20	
Rated speed rpm : 275	·
	CONTROL LEVED
guide sleeve	CONTROL LEVER
travel mm : 1.44	
Tolerance mm : + 0.15	control lever
Rated aread was 1700	position degree : 120.0
Rated speed rpm : 799	tolerance degree : +- 4.0
guide steeve	
travel mm : 5.21 +	DATES OBCES
	RATED SPEED
Tolerance mm : + 0.25	rack travel mm : 9.75

Rated speed rpm : 1182
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1280
Tolerance 1/min : + 15

## LOW IDLE

control lever

position degree : 83.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :> 7.40

Testing:

Rated speed rpm : 275
rack travel mm : 4.70
Tolerance mm : + 0.10

Rated speed rpm : 340

TORQUE CONTROL

Rated speed rpm : 1000 rack travel mm : 10.75 Tolerance mm : + 0.05

Rated speed rpm : 1150 rack travel mm : 10.75 Tolerance mm :  $\div$  0.10

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 10.75
Tolerance mm : + 0.05

Rated speed rpm : 600 Pressure hPa : rack travel mm : 9.50 Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 260 rack travel mm : 10.35 Tolerance mm : +- 0.05

Pressure hPa : 190 rack travel mm : 9.90 Tolerance mm : + 0.10

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 121.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000s. : + 4.0

#### LOW IDLE

Rated speed rpm : 275 4.70 Rack travel in mm : Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 16.0 Tolerance cm3/1000 strokes : +- 3.0Check tolerance cm3/1000s. : +-6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance : 12.0 cm3/1000s.

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 25.01.94 : ISO 4113

Combination No. : 0 402 746 920

Injection pump

Pump designation : PES6P120A320RS7241 EP type number : 0 412 726 854

Governor

Governer design. : RQV350...900PA935-1

Governer no. : 0 421 813 820

Cust. part No. :

Customer-spec. information : BAUDOUIN Customer Motor : 6P15 2E

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity

: 150 min. L/h Tolerance l/h:  $\leftarrow$  20.0

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 074

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 3.65 Tolerance mm : +- 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance nm : +- 1.50

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm: 12.05 Tolerance mm : +- 0.05

Rated speed rpm : 350

Rack travel in mm: 4.90

F16

Tolerance mm Del. quantity	: + 0.10	Setting point w/out bumper sp	oring
cm3/1000 strokes Tolerance	: 20.0	Rated speed rpm : 100	
cm3/1000 strokes Check tolerance	: + 3.0	CRT mm min. : > 6.40	
cm3/1000s. Spreed	: + 6.0	Testing:	
Tolerance cm3/1000 strokes	: 8.0	Rated speed rpm : 350 rack travel mm : 4.90	
Check tolerance cm3/1000s.	: 12.0	Tolerance mm : +- 0.10	
	‡	Rated speed rpm : 400	
(B) SETTING OF IN. WITH GOVERNOR		TORQUE CONTROL Rated speed rpm : 900 rack travel mm : 12.05 Tolerance mm : +- 0.05	
GUIDE SLEEVE POSI	TION		
control lever position degree		Start interlock	
Rated speed rpm	+	Rated speed rpm : > 100 Rated speed rpm : < 270	
Rack travel in mm Tolerance mm		Check speed 1/min :> 80 Check	
CONTROL LEVER		speed 1/min : < 290	
control lever position degree tolerance degree			
RATED SPEED rack travel mm	: 11.00 + : 945 +	TCM IDTE	
Rated speed rpm Tolerance 1/min	: +- 5	Rated speed rpm : 350	
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1015 : +- 15	Rack travel in mm : 4.90 Tolerance mm : + 0.10 Del. quantity	
rack travel mm	: 0.50	cm3/1000 strokes : 20.0 Tolerance	
Tolerance mm Rated speed rpm	: + 0.50 : 1150	cm3/1000 strokes : +- 3.0 Check tolerance	
, , , , , , , , , , , , , , , , , , ,	†	cm3/1000s. : + 6.0 Spreed Tolerance	
LOW IDLE		cm3/1000 strokes : 8.0 Check tolerance	
		cm3/1000s. : 12.0	
control lever position degree tolerance degree			

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 16.09.97 : ISO 4113

Combination No. : 0 400 876 420

Injection pump

Pump designation : PES6A9OD41ORS2757 EP type number : 0 410 896 086

Governor

Governer design. : RSV425...1000A1C2266

Governer no.

: 0 420 232 598

Cust. part No. :

Customer-spec. information

Customer : IVECO-FIAT

Motor

: 8065.25.080

# TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

: 173.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : 2.30 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : ← 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.80 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 90.5

Tolerance

cm3/1000 strokes : +- 0.5

Check tolerance cm3/1000s. : +- 2.5	Check tolerance cm3/1000s. : +- 2.5 Spreed
Spreed	Tolerance
Tolonopeo	- cm3/1000 strokes : 3.0
Tolerance cm3/1000 strokes : 3.0	Check tolerance cm3/1000s. : 5.0
Check tolerance cm3/1000s. : 5.0	
	CONTROL LEVER
	control lever
Rated speed rpm : 475	position degree : 108.0
Rack travel in mm: 6.90	tolerance degree : + 4.0
Tolerance mm : + 0.10	RATED SPEED
Del. quantity	rack travel mm : 10.80
cm3/1000 strokes : 13.0	Rated speed rpm : 1045
Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : $+$ 3.0	+
Check tolerance	rack travel mm : 4.00
cm3/1000s. : +- 5.0	Rated speed rpm : 1105
Spreed	Tolerance 1/min : +- 15
Tolerance	1
cm3/1000 strokes : 2.5 Check tolerance	rack travel mm : 0.85
cm3/1000s. : 4.5	Tolerance mm : +- 0.55 Rated speed rpm : 1240
CIID/ (0005 4.5	Rated speed (pill : 1240
	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1135
WITH GOVERNOR	Tolerance 1/min : + 15
	+
	+
	1
CHIRE SIFELE DOSTION	1
GUIDE SLEEVE POSITION	LOW TOLE
GUIDE SLEEVE POSITION	LOW IDLE
	LOW IDLE
control lever	LOW IDLE  control lever
control lever	control lever
control lever position degree : - 3 Rated speed rpm : 800	control lever
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50	control lever position degree : 82.0 tolerance degree : +- 4.0
control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 82.0
control lever position degree : -3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : +- 0.10
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : +- 0.10
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.75  FULL LOAD DELIVERY AT FULL LOAD STOP	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : +- 0.10
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : +- 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : +- 0.10  Rated speed rpm : 100
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 900	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : +- 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 900 Del. quantity	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : +- 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 475
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 900 Del. quantity cm3/1000 strokes : 90.5	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : +- 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 475 rack travel mm : 6.90
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 900 Del. quantity cm3/1000 strokes : 90.5 Tolerance	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : +- 0.10  Rated speed rpm : 100  CRT mm min. :> 19.50  Testing:  Rated speed rpm : 475
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 900 Del. quantity cm3/1000 strokes : 90.5	control lever position degree : 82.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 475 rack travel mm : 6.40 Tolerance mm : +- 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 475 rack travel mm : 6.90

Rated speed rpm Tolerance 1/min	: 650 : +- 30
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1000 : 11.80 : +- 0.05
Rated speed rpm rack travel mm Tolerance mm	: 1000 : 12.30 : +- 0.10
Rated speed rpm	: 500
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1000 : 900 : 11.30 : ← 0.10
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1000 : 900 : 11.80 : +- 0.05
MEASUREMENT	
Rated speed rpm	: 1000
STARTING FUEL DEL	IVERY
Rated speed rpm rack travel mm Tolerance mm Del. quantity	: 100 : 20.25 : + 0.75
cm3/1000 strokes Tolerance	: 90.0
cm3/1000 strokes Check tolerance cm3/1000s.	: +- 5.0 : +- 8.0

Rated speed rpm : 475

F21

Rack travel in mm : 6.90

Tolerance mm Del. quantity	: +-	0.10
cm3/1000 strokes	:	13.0
Tolerance		7.0
cm3/1000 strokes Check tolerance	: +-	3.0
cm3/1000s.	: +-	5.0
Spreed		
Tolerance		_
cm3/1000 strokes	:	2.5
Check tolerance		, ,
cm3/1000s.	:	4.5

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 11.09.97 : ISO 4113

Combination No. : 9 400 030 669

Injection pump

Pump designation : PES6A100b320/3RS3503

EP type number : 9 410 037 213

Governor

Governer design. : RQV400...1250AB1301R

Governer no. : 9 420 030 158

Cust. part No. : TATA-CUMMINS

Customer-spec. information Customer : CUMMINS : 6BTAA Motor Power KW : 118.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2;

Test oil inlet

temp. °C 40 Tolerance °C : + 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

207.0 bar Tolerance bar : +- 3.0

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.10 Tolerance mm : +- 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300 Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.00 Tolerance : +- 0.10

Check

tolerance °NW : +- 0.29

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.75

Tolerance mm : ← 0.05	†
	CONTROL LEVER
Rack travel in mm : 6.00 Tolerance mm : + 0.10	control lever position degree : 61.0 tolerance degree : +- 4.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	RATED SPEED  rack travel mm : 10.75  Rated speed rpm : 1300  Tolerance 1/min : +- 5
GUIDE SLEEVE TRAVEL	rack travel mm : 4.00 Rated speed rpm : 1425
Rated speed rpm : 1347 guide sleeve	Tolerance 1/min : +- 15
travel mm : 8.48 Tolerance mm : + 0.15	rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1485
Rated speed rpm : 400 guide sleeve	
travel mm : 1.71 Tolerance mm : + 0.20	LOW IDLE
Rated speed rpm : 380 guide sleeve	J COW IDEE
travel mm : 4.97 Tolerance mm : + 0.25	control lever position degree : 15.0 tolerance degree : +- 4.0
Rated speed rpm : 499 guide sleeve	+ Setting point w/out bumper spring
travel mm : 2.75 Tolerance mm : + 0.25	Rated speed rpm : 100
Rated speed rpm : 549 guide sleeve	CRT mm min. :> 9.00
travel mm : 3.30 Tolerance mm : + 0.25	+ Testing: + Poted around non : 400
Rated speed rpm : 560 guide sleeve	+ Rated speed rpm : 400 + rack travel mm : 6.00 + Tolerance mm : + 0.10
travel mm : 3.37 Tolerance mm : + 0.25	rack travel mm : 2.00 Rated speed rpm : 625
Rated speed rpm : 1620 guide sleeve	Tolerance 1/min : + 30
guide sleeve travel mm : 11.50 Tolerance mm : + 0.50	TORQUE CONTROL Rated speed rpm : 1000 rack travel mm : 11.75
GUIDE SLEEVE POSITION	Tolerance mm : + 0.05
Rated speed rpm : 1250	Rated speed rpm : 750 rack travel mm : 11.75
Rack travel in mm : 16.00 Tolerance mm : +- 1.30	+ Tolerance mm : +- 0.10
	Rated speed rpm : 1250 rack travel mm : 11.75

# ANEROID/ALTITUDE COMPENSATOR TEST

# SETTING

Rated speed rpm : 550
Pressure hPa : 600
rack travel mm : 11.75
Tolerance mm : + 0.10

Rated speed rpm : 550
Pressure hPa : Prack travel mm : 10.50
Tolerance mm : + 0.10

## **MEASUREMENT**

Rated speed rpm : 550

Pressure hPa : 400 rack travel mm : 11.20 Tolerance mm : + 0.20

Pressure hPa : 340 rack travel mm : 10.80 Tolerance mm : + 0.20

## Start interlock

Rated speed rpm : > 170 Rated speed rpm : > 300

Check

speed 1/min : < 190

Check

speed 1/min : < 340

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 12.00 Tolerance mm : + 0.75

# LOW IDLE

Rack travel in mm : 6.00 Tolerance mm : + 0.10

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 11.09.97 : ISO 4113

Combination No. : 9 400 030 696

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

Governor

Governer design. : RSV475...1250A0C826R

Governer no. : 9 420 034 700

Cust. part No. : 3928662

Customer-spec. information

Customer : CUMMINS

Motor

: 6BT - 165 HP

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde assembly

: 1 688 901 101

Opening pressure bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0

Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50

Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance °NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.00

Tolerance : +- 0.10

Check

: +- 0.29 tolerance °NW

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 12.60

Tolerance mm : +- 0.05	<pre>Del. quantity cm3/1000 strokes : 106.0</pre>
Del. quantity cm3/1000 strokes : 106.0	Tolerance cm3/1000 strokes : +- 1.0
	+ Check tolerance
Tolerance cm3/1000 strokes : +- 1.0	+ cm3/1000s. : + 3.0 + Spreed
	† Tolerance
Check tolerance cm3/1000s. : +- 3.0	+ cm3/1000 strokes : 4.0 - Check tolerance
	cm3/1000s. : 6.5
Spreed	<u>†</u>
Tolerance	
cm3/1000 strokes : 4.0	CONTROL LEVER
Check tolerance	control lever
cm3/1000s. : 6.5	<pre>position degree : 111.0 tolerance degree : +- 4.0</pre>
	RATED SPEED
Rated speed rpm : 475	rack travel mm : 11.60
·	Rated speed rpm : 1315
Rack travel in mm : 5.50 Tolerance mm : + 0.10	Tolerance 1/min : +- 5
Tolerance mm : +- 0.10  Del. quantity	rack travel mm : 4.00
cm3/1000 strokes : 20.5	Rated speed rpm : 1415
Tolerance	+ Tolerance 1/min : + 5
cm3/1000 strokes : + 2.0	+
Check tolerance	rack travel mm : 0.85
cm3/1000s. : + 4.5	Tolerance mm : + 0.55
Spreed Tolerance	+ Rated speed rpm : 1500
cm3/1000 strokes : 6.0	rack travel mm : 4.00
Check tolerance	Tolerance mm : +- 0.05
cm3/1000s. : 8.0	Rated speed rpm : 1420
	→ Tolerance 1/min : - 15
(B) SETTING OF INJECTION PUMP	+
WITH GOVERNOR	<u> </u>
	LOW IDLE
GUIDE SLEEVE POSITION	Ŧ
000	control lever
Rated speed rpm : 800	position degree : 85.0
Rack travel in mm: 0.50	tolerance degree : + 4.0
Tolerance mm : +- 0.20	Setting point w/out bumper spring
governor spring	Rated speed rpm : 475
pre-tension	rack travel mm : 5.00
click setting $x$ : 4.50	+ Tolerance mm : + 0.10
SILL LOAD DELTUSON AT SULL LOAD STOD	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	+ CRT mm min. : > 19.50
Rated speed rpm : 1250	+
Aneroid pressure	† Testing:
hPa : 800	†

Rated speed rpm rack travel mm Tolerance mm	: 475 : 5.50 : + 0.10
rack travel mm Rated speed rpm Tolerance 1/min	
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1250 : 12.60 : + 0.05
Rated speed rpm	: 750
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 800
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 11.00 : ← 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa nack travel mm Tolerance mm	: 655 : 12.30 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 500 : 11.70 : ← 0.20
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 800 : 750 : 113.8
Tolerance cm3/1000 strokes	
Check tolerance cm3/1000s.	: + 4.0

Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +-	500 88.8 - 1.0 - 3.0	
STARTING FUEL DEL	IVERY	<u> </u>	······································
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +-	121.5	
LOW IDLE	<del></del>		
Rated speed rpm	:	475	
Rack travel in mm Tolerance mm Del. quantity		5.50 - 0.10	
cm3/1000 strokes Tolerance	:	20.5	
cm3/1COO strokes Check tolerance	: +	2.0	
cm3/1000s. Spreed	: +-	4.5	
Tolerance cm3/1000 strokes	:	6.0	
Check tolerance cm3/1000s.	•	8.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 11.09.97 : ISO 4113

Combination No. : 9 400 030 707

Injection pump

Pump designation : PES6A100D320/3RS3511

EP type number : 9 410 037 253

Governor

Governer design. : RQV400...1250AB1320R

Governer no. : F 002 A30 000

Cust. part No. : TATA-CUMMINS

Customer-spec. information Customer : CUMMINS

Motor

: 6BT - 145 BHP

# TEST BENCH REQUIREMENTS

Inlet line : 3.2;

Test oil inlet

temp. °C

: 40

Tolerance °C

: +- 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0

Tolerance bar : + 1.0

Prestroke mm : 3.10
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50

Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

: +- 0.75 tolerance °NW

Start of delivery blocking

\*NW after s.o.d. : 6.00

Tolerance : + 0.10

Check

tolerance °NW : + 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm: 12.20

Tolerance mm	: +- 0.05	†
		CONTROL LEVER
Rack travel in m Tolerance mm		control lever position degree : 63.0 tolerance degree : +- 4.0
(B) SETTING OF I	NJECTION PUMP	RATED SPEED rack travel mm : 11.20 Rated speed rpm : 1325 Tolerance 1/min : +- 5
GUIDE SLEEVE TRA	VEL	rack travel mm : 4.00 Rated speed rpm : 1455
Rated speed rpm guide sleeve		† Tolerance 1/min : +- 15
travel mm Tolerance mm	: 8.48 : +- 0.15	+ rack travel mm : 0.50 + Tolerance mm : +- 0.50 + Rated speed rpm : 1525
Rated speed rpm guide sleeve travel mm	: 400 : 1.71	+
Tolerance mm	: + 0.20	LOW IDLE
Rated speed rpm guide steeve	: 880	+
travel mm Tolerance mm	: 4.97 : + 0.25	control lever position degree : 20.0
Rated speed rpm guide sleeve	: 499	+ tolerance degree : +- 4.0 + Setting point w/out bumper spring
travel mm Tolerance mm	: 2.75 : ← 0.25	+ Rated speed rpm : 100
Rated speed rpm guide sleeve	: 549	CRT mm min. :> 9.00
travel mm Tolerance mm	: 3.30 : ← 0.25	Testing:
Rated speed rpm guide sleeve		+ Rated speed rpm : 400 + rack travel mm : 8.45 + Tolerance mm : +- 0.10
guide sleeve travel mm Tolerance mm		rack travel mm : 2.00 Rated speed rpm : 760
Rated speed rpm guide sleeve		+ Tolerance 1/min : +- 30 +
travel mm Tolerance mm	: 11.50 : + 0.50	TORQUE CONTROL Rated speed rpm : 750 rack travel mm : 12.20
GUIDE SLEEVE POST	ITION	Tolerance mm : + 0.05
Rated speed rpm	: 1250	Rated speed rpm : 1250
Rack travel in mr Tolerance mm		ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 550
Pressure hPa : 750
Tolerance mm : +- 0.05

Rated speed rpm : 550
Pressure hPa : rack travel mm : 11.25
Tolerance mm : + 0.20

## **MEASUREMENT**

Rated speed rpm : 550

Pressure hPa : 445 rack travel mm : 11.95 Tolerance mm : + 0.20

Pressure hPa : 390 rack travel mm : 11.60 Tolerance mm : +0.20

## Start interlock

Rated speed rpm : > 170 Rated speed rpm : > 300

Check

speed 1/min : < 190

Check

speed 1/min : < 340

### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 15.50 Tolerance mm : + 0.50

# LOW IDLE

Rack travel in mm : 8.45 Tolerance mm : + 0.10

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 11.09.97 Test oil : ISO 4113

Combination No. : 9 400 030 708

Injection pump

Pump designation : PES6A100D320/3RS3506

EP type number : 9 410 037 236

Governor

Governer design. : RQV400...1250AB1328R

Governer no. : F 002 A30 003

Cust. part No. : TATA-CUMMINS

Customer-spec. information

Customer : CUMMINS

Motor

: 6BT - 125 ps

# TEST BENCH REQUIREMENTS

Inlet line : 1.1;

Test oil inlet

Tolerance °C : +-

: +- 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

Tolerance bar : + 1.5

: 208.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance °NW

: +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 5.75

Tolerance : + 0.10

Check

tolerance °NW : + 0.29

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.30

Tolerance mm : + 0.05

Rack travel in mr Tolerance mm		‡	control position tolerar
(B) SETTING OF IN	NJECTION PUMP	++	RATED S rack tr Rated s Tolerar
GUIDE SLEEVE TRAN	/EL	Ŧ	rack tr
Rated speed rpm guide sleeve	: 1308	‡	Rated s Tolerar
travel mm Tolerance mm	: 8.09 : - 0.15	†	rack tr Tolerar Rated s
Rated speed rpm guide sleeve		+	Nacca :
travel mm Tolerance mm	: 1.71 : + 0.20	‡	LOW IDL
Rated speed rpm guide sleeve		+	CON 101
travel mm Tolerance mm	: 4.87 : +- 0.25	+	control position tolerar
Rated speed rpm guide sleeve		+	Setting
travel mm Tolerance mm	: 2.75 : + 0.25	<u>†</u>	Rated s
Rated speed rpm guide sleeve		Ţ	CRT mm
travel mm Tolerance mm	: 3.30 : +- 0.25	+	Testing Rated s
Rated speed rpm guide sleeve		Ŧ	rack tr Tolerar
travel mm Tolerance mm	: 3.37 : +- 0.25	+	rack tr Rated s
Rated speed rpm guide sleeve		Ŧ	Tolerar
travel mm Tolerance mm	: 11.50 : +- 0.50	_	TORQUE Rated s
GUIDE SLEEVE POST	ITION	Ŧ	Tolerar
Rated speed rpm		Ŧ	Rated s
Rack travel in mn Tolerance mm		+++++++++++++++++++++++++++++++++++++++	Tolerar Rated s rack tr
CONTROL LEVER		- <u>†</u>	Tolerar

position degree tolerance degree	
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 9.30 : 1300 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1400 : +- 15
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : +- 0.50 : 1490
LOW IDLE	
control lever position degree tolerance degree	: 15.0 : + 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 100
CRT mm min.	: > 9.00
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 400 : 6.40 : + 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 630 : + 30
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1250 : 10.30 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 550 : 10.30 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 750 : 10.30 : + 0.15

control lever

Start interlock

Rated speed rpm :> 170 Rated speed rpm :> 300

Check

speed 1/min : < 190

Check

speed 1/min : < 340

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 14.40 Tolerance mm : + 0.50

# LOW IDLE

Rack travel in mm : 6.40 Tolerance mm :  $\leftarrow 0.10$ 

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 25.08.97 Edition : 25.08.97 Test oil : ISO 4113

Combination No. : 0 402 066 713

Injection pumo

Pump designation : PES6P110A120RS3357

EP type number : 0 412 016 754

Governor

Governer design. : RSV550...1100P2A677

Governer no. : C 421 833 596

Cust. part No. : 3931957

Customer-spec. information

Customer : CDC

Motor

: 6CTA ELITE : 208.0

Power KW

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

: 208.5

Tolerance bar : +- 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60
Tolerance mm : - 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.30

Check

tolerance °NW : +- 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.00

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Tolerance mm : ← 0.05	Rated speed rpm : 1100 Aneroid pressure
Del. quantity cm3/1000 strokes : 195.5	hPa : 1500 Del. quantity
Tolerance	- cm3/1000 strokes : 195.5 - Tolerance
cm3/1000 strokes : +- 1.0	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 3.0	- cm3/1000s. : +- 3.0 - Spreed
Spreed	Tolerance cm3/1000 strokes : 4.0
Tolerance cm3/1000 strokes : 4.0	Check tolerance cm3/1000s. : 7.5
Check tolerance	
cm3/1000s. : 7.5	CONTROL LEVER
	control lever
Rated speed rpm : 550	position degree : 99.0
Rated speed rpm : 550	tolerance degree : +- 4.0
Rack travel in mm : 6.40	- RATED SPEED
Tolerance mm : + 0.20	rack travel mm : 12.00
Del. quantity cm3/1000 strokes : 29.5	Rated speed rpm : 1185 Tolerance 1/min : +- 5
Tolerance	L Toterance tymen : +- 5
cm3/1000 strokes : +- 2.0	rack travel mm : 4.00
Check tolerance	- Rated speed rpm : 1285
cm3/1000s. : +- 4.5	Tolerance 1/min : +- 5
Spread Tolerance	pook trovol me
cm3/1000 strokes : 6.0	rack travel mm : 0.85 - Tolerance mm : +- 0.55
Check tolerance	- Rated speed rpm : 1460
cm3/1000s. : 9.0	
+	- rack travel mm : 4.00
	- Rated speed rpm : 1320
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tolerance 1/min : +- 15
	<u>.</u>
CUIDE CLEEVE POSITION	LOU TO E
GUIDE SLEEVE POSITION	- LOW IDLE
control lever	- - control lever
position degree : - 3	- control lever - position degree : 79.0
Rated speed rpm : 800	tolerance degree : +- 4.0
Dook tropical in man a C 50	Common laves differences
Rack travel in mm: 0.50 + Tolerance mm: + 0.20 +	- Control lever difference - Grad : 20.0
+	- Grad : 20.0 - tolerance degree : +- 6.0
governor spring	- - Setting point w/out bumper spring
click setting x : 2.50	-
-	- Rated speed rpm : 550
FULL LOAD OF THE VALUE OF THE PARTY OF THE P	- rack travel mm : 5.90
FULL LOAD DELIVERY AT FULL LOAD STOP	- Tolerance mm : +- 0.10
†	-

Rated speed rpm	: 100	+ Aneroid pressure
CRT mm min.	: < 19.00	hPa : 1500 Rated speed rpm : 750
Testing:		Del. quantity cm3/1000 strokes : 218.5 Tolerance
Rated speed rpm	: 550	+ cm3/1000 strokes : +- 2.0
rack travel mm Tolerance mm	: 6.40 : +- 0.20	+ Check tolerance - cm3/1000s. : +- 5.0
TORQUE CONTROL		- Aneroid pressure
Rated speed rpm	: 1100	→ hPa : -
rack travel mm Tolerance mm	: + 0.05	Rated speed rpm : 600 - Del. quantity
Rated speed rpm		cm3/1000 strokes : 154.5 Tolerance
rack travel mm Tolerance mm	13.50	+ cm3/1000 strokes : +- 1.0
Tolerance mm	: +- 0.20	Check tolerance
Rated speed rpm	: 1050	+ cm3/1000s. : +- 3.0
Rated speed rpm rack travel mm Tolerance mm	: 13.10	†
loterance mm	: + 0.20	STARTING FUEL DELIVERY
Rated speed rpm rack travel mm Tolerance mm	: 950	+
rack travel mm	: 13.50	+ Rated speed rpm : 100 + rack travel mm : 21.00
roterance mm	: - 0.20	Tolerance mm : +- 0.50
		- + Del. quantity
ANEROID/ALTITUDE		+ cm3/1000 strokes : 165.0
COMPENSATOR TEST		+ Tolerance + cm3/1000 strokes : +- 20.0
		+ Check tolerance
SETTING		$\frac{1}{1}$ cm3/1000s. : +- 25.0
Rated speed rpm Pressure hPa	: 600	
Rated speed rpm	: 600	+ LOW IDLE
Pressure hPa rack travel mm	: 11.50	Rated speed rpm : 550
Tolerance mm	: ← 0.20	Park tangel in an
MEASUREMENT		Rack travel in mm : 6.40 Tolerance mm : +- 0.20
		+ Del. quantity
Rated speed rpm	: 600	+ cm3/1000 strokes : 29.5 + Tolerance
Pressure hPa	: 1150	+ cm3/1000 strokes : +- 2.0
rack travel mm	: 12.95	+ Check tolerance
Tolerance mm	: + 0.20	- cm3/1000s. : +- 4.5 - Spreed
Pressure hPa	: 975	+ Tolerance
rack travel mm Tolerance mm	: 12.15	cm3/1000 strokes : 6.0
iolerance mm	: +- 0.20	+ Check tolerance + cm3/1000s. : 9.0
		+
FUEL DELIVERY CHA	MACTERISTICS	<del>-</del> <u>†</u>
LOEF REFINER! CUP	JUNI LEUTO LTCO	Ţ

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 15.09.97 Test oil : ISO 4113

Combination No. : 0 402 046 880

Injection pump

Pump designation : PES6P120B320RS3377

EP type number : 0 412 026 796

Governor

Governer design. : RQ750PA1304 Governer no. : 0 421 801 811

Cust. part No. :

Customer-spec. information

Customer : PERKINS
Motor : EAGLE2006TWG2
Power KW : 287.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

: 40 : + 2.0 temp. °C Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 115 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2
x length mm : 600 2.0

## REMARKS

(A) INJECTION FUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05 Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1- 4- 2- 6- 3-

Phasing : 0-60-120-180-240

: -300 Tolerance : +- 0.30

Check

tolerance °NW : **←** 0.75

# BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.90 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 272.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance cm3/1000s. : ← 4.0	Aneroid pressure hPa : -
Spreed	bel. quantity cm3/1000 strokes : 272.0
Tolerance cm3/1000 strokes : 5.0	<pre>Tolerance cm3/1000 strokes : +- 1.0 Check tolerance</pre>
Check tolerance cm3/1000s. : 9.0	+ cm3/1000s. : +- 4.0 + Spreed + Tolerance
	cm3/1000 strokes : 5.0 Check tolerance
	+ cm3/1000s. : 9.0
Rack travel in mm: 4.30 Tolerance mm: + 0.20 Del. quantity	CONTROL LEVER
cm3/1000 strokes : 30.0	+
Tolerance cm3/1000 strokes : +- 4.0	+ control lever + position degree : 34.0
Check tolerance	tolerance degree : + 4.0
cm3/1000s. : +- 6.0	t combact toward
Spreed Tolerance	the control lever position degree : 94.0
cm3/1000 strokes : 8.0	tolerance degree : +- 4.0
Check tolerance	+
cm3/1000s. : 12.0	+ ASSEMBLY GOVERNOR SETTING
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 765
WITH GOVERNOR	rack travel mm : 11.90
	Rated speed rpm : 785
GUIDE SLEEVE TRAVEL	Tolerance 1/min : +- 5 rack travel mm : 4.00
Rated speed rpm : 763	T rack travel limit : 4.00
guide sleeve	rack travel mm : 0.50
travel mm : 4.57	+ Tolerance mm : + 0.50
Tolerance mm : +- 0.15	+ Rated speed rpm : 900
Rated speed rpm : 790	<del></del>
guide sleeve travel mm : 8.50	+ Rated speed rpm : 766
travel mm : 8.50 Tolerance mm : +- 0.25	† rack travel mm : 11.90
TOTAL CHIEF THE COLUMN	Rated speed rpm : 786
Rated speed rpm : 809	Tolerance 1/min : +- 5
guide sleeve travel mm : 12.00	† rack travel mm : 4.00
Tolerance mm : +- 0.25	t rack travel mm : 0.50
Total affice and . +- 0.25	Tolerance mm : +- 0.50
Rated speed rpm : 860 guide sleeve	
travel mm : 13.50	Rated speed rpm : 767
Tolerance mm : +- 0.50	rack travel mm : 11.90
	Rated speed rpm : 787
FULL LOAD DELIVERY AT FULL LOAD STOP	+ Tolerance 1/min : +- 5
Poted aread pro . 700	rack travel mm : 4.00
Rated speed rpm : 700	rack travel mm : 0.50

Tolerance mm :  $\leftarrow$  0.50

Rated speed rpm : 768 rack travel mm : 11.90

Rated speed rpm : 788
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.50 Tolerance mm : + 0.50

Rated speed rpm : 769 rack travel mm : 11.90

Rated speed rpm : 789
Tolerance 1/min : + 5
rack travel mm : 4.00

Rated speed rpm : 770 rack travel mm : 11.90

Rated speed rpm : 790
Tolerance 1/min : + 5
rack travel mm : 4.00

TORQUE CONTROL

Rated speed rpm : 700 rack travel mm : 12.90 Tolerance mm : + 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 17.90 Tolerance mm : +0.30

Del. quantity

cm3/1000 strokes : 260.0

Tolerance

cm3/1000 strokes : + 25.0

Check tolerance

cm3/1000s. : +- 29.0

End of test specification sheet

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Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 12.09.97 : ISO 4113

Combination No. : 0 402 066 712

Injection pump

Pump designation : PES6P120A120RS3358 EP type number : 0 412 026 784

Governor

Governer design. : RSV475...1200F2A675

Governer no. : 0 421 833 594

Cust. part No. : 3283573

Customer-spec. information

Customer : CDC
Motor : 6BTA-590 ELITE

Motor Power KW : 138.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp.  $^{\circ}$ C : 40 Tolerance  $^{\circ}$ C :  $\leftarrow$  2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 100 Tolerance l/h : +- 20.0

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.85
Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance 'NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.75

: +- 0.50 Tolerance

Check

tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

+	
Rack travel in mm : 11.30 + Tolerance mm : +- 0.05 +	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 140.0	Rated speed rpm : 1200 Aneroid pressure hPa : 1500
Tolerance cm3/1000 strokes : + 1.0	Del. quantity cm3/1000 strokes : 140.0
Check tolerance cm3/1000s. : + 3.0	Tolerance cm3/1000 strokes : + 1.0 Check tolerance
Spreed	cm3/1000s. : +- 3.0 Spreed Tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	
	CONTROL LEVER
Rated speed rpm : 475	control lever position degree : 103.0
Rack travel in min: 5.40 + Tolerance mm : + 0.10 + Del. quantity	tolerance degree : +- 4.U  RATED SPEED
cm3/1000 strokes : 21.0 +	rack travel mm : 10.30 Rated speed rpm : 1245
cm3/1000 strokes : + 2.0 + Check tolerance	Tolerance 1/min : + 5
cm3/1000s. : + 4.5 Spreed Tolerance	rack travel mm : 4.00 Rated speed rpm : 1310 Tolerance 1/min : +- 15
cm3/1000 strokes : 6.0 + Check tolerance	rack travel mm : 0.85
cm3/1000s. : 9.0	Tolerance mm : +- 0.55 Rated speed rpm : 1475
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1325 Tolerance 1/min : + 15
GUIDE SLEEVE POSITION	
control lever position degree : -3	LOW IDLE
Rated speed rpm : 800	control lever position degree : 81.0
Rack travel in mm: 0.50 + Tolerance mm: +- 0.20 +	tolerance degree : + 4.0
governor spring pre-tension	Setting point w/out bumper spring  Rated speed rpm : 475
click setting x : 2.75	rack travel mm : 4.90 Tolerance mm : +- 0.10

# Testing:

Rated speed rpm	:	475
rack travel mm	:	5.40
Tolerance mm	: +	- 0.10

TORQUE CONTROL

Rated speed rpm : 1200 rack travel mm : 11.30 Tolerance mm : +- 0.05

Rated speed rpm : 750 rack travel mm : 11.30 Tolerance mm : + 0.10

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm	:	500
Pressure hPa	:	1500
rack travel mm	:	11.30
Tolerance mm	: -	<b>-</b> 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 9.00
Tolerance mm : + 0.20

## **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 900 rack travel mm : 10.90 Tolerance mm : + 0.20

Pressure hPa : 560 rack travel mm : 9.55 Tolerance mm : +- 0.05

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500 Rated speed rpm : 750

Del. quantity

cm3/1000 strokes : 157.0

Tolerance		
cm3/1000 strokes	: +-	3.0
Check tolerance		
cm3/1000s.	: +-	6.0
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000s.	:	12.0

Aneroid pressure
hPa : Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 97.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000s. : +- 4.0

#### STARTING FUEL DELIVERY

Rated speed rom	: 100
rack travel mm	: 20.25
Tolerance mm	: +- 0.75
Del. quantity	
cm3/1000 strokes	: 170.0
Tolerance	
cm3/1000 strokes	: +- 20.0
Check tolerance	
cm3/1000s.	: <del>+-</del> 25.0

## LOW IDLE

Rated speed rpm	:		475
Rack travel in mm Tolerance mm	:	+	5.40 0.10
Del. quantity			
cm3/1000 strokes Tolerance	:		21.0
cm3/1000 strokes	:	+-	2.0
Check tolerance cm3/1000s.	:	+-	4.5
Spreed Tolerance			
cm3/1000 strokes	:		6.0
Check tolerance cm3/1000s.	:		9.0
· · · · · ·			

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 16.09.97 Test oil : ISO 4113

Combination No. : 0 402 646 667

Injection pump

Pump designation : PE6P12OA32ORS7412 EP type number : 0 412 626 953

Governor

Governer design. : RQV275...1000PA1278K

Governer no. : 0 421 815 509

Cust. part No. : 1310221/1

Customer-spec. information

Customer : DAF
Motor : XF 315 M
Power KW : 315.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity min. l/h : 145 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.45 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*₩ : + 0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance "NW : +- 0.75

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.40

Tolerance mm : +- 0.05

1	guide sleeve
Del. quantity cm3/1000 strokes : 318.0	travel mm : 3.92 Tolerance mm : + 0.25
Tolerance cm3/1000 strokes : + 1.0	Rated speed rpm : 1310 guide sleeve
Check tolerance cm3/1000s. : + 4.0	travel mm : 13.50 Tolerance mm : + 0.50
Spreed	GUIDE SLEEVE POSITION
Tolerance 5.0	control lever position degree : - 1
Check tolerance cm3/1000s. : 9.0	Rated speed rpm : 1158  Rack travel in mm : 12.00
	Tolerance mm : + 2.70
Rated speed rpm : 275	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 3.80 Tolerance mm : +- 0.10	Rated speed rpm : 980
Det. quantity cm3/1000 strokes : 17.0	Areroid pressure hPa : 1500
Tolerance + 3.0 + cm3/1000 strokes : + 3.0	Del. quantity cm3/1000 strokes : 318.0
Check tolerance cm3/1000s. : + 6.0	Tolerance cm3/1000 strokes : +- 1.0
Spreed + Tolerance + cm3/1000 strokes : 8.0 +	Check tolerance cm3/1000S. : +- 4.0 Spreed
Check tolerance cm3/1000s. : 12.0	Tolerance cm3/1000 strokes : 5.0
(B) SETTING OF INJECTION PUMP	Check tolerance cm3/1000s. : 9.0
WITH GOVERNOR	
GUIDE SLEEVE TRAVEL	CONTROL LEVER
+	control lever
Rated speed rpm : 1077 guide sleeve travel mm : 10.24	position degree : 119.0 tolerance degree : +- 4.0
Tolerance mm : + 0.15	RATED SPEED rack travel mm : 12.40
Rated speed rpm : 275 guide sleeve	Rated speed rpm : 1040 Tolerance 1/min : +- 5
travel mm : 2.04	Check
Tolerance mm : + 0.20	speed 1/min : +- 10
Rated speed rpm : 704 - guide sleeve	rack travel mm : 4.00 Rated speed rpm : 1145
travel mm : 6.53 Tolerance mm : + 0.25	Tolerance 1/min : +- 15 Check speed 1/min : +- 20
Rated speed rpm : 400	rack travel mm : 0.50
Т	. 4035 C1 47CC Milli . U. 20

Tolerance mm Rated speed rpm		Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1500 : 13.40
LOW IDLE		Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: - : 8.55
control lever position degree	: 72.0	# MEASUREMENT	
tolerance degree	: +- 4.0	+ Rated speed rpm	: 980
Setting point w/o	out bumper spring	Pressure hPa	: 520
Rated speed rpm	: 175	rack travel mm Tolerance mm	: 12.20
CRT mm min.	: > 6.60	+	
Testing:		<ul><li>Pressure hPa</li><li>rack travel mm</li><li>Tolerance mm</li></ul>	9.80
Rated speed rpm rack travel mm Tolerance mm	: 3.80	+ Tolerance mm +	: + 0.15
Rated speed rpm		FUEL DELIVERY CHA	ARACTERISTICS
TODALE CONTROL		- Aneroid pressure	4500
TORQUE CONTROL Rated speed rpm	: 980	+ hPa + Rated speed rpm	: 1500 : 750
rack travel mm Tolerance mm	: + 0.05	+ Del. quantity - cm3/1000 strokes	: 342.0
Rated speed rpm	: 750	Tolerance cm3/1000 strokes	: +- 2.0
rack travel mm Tolerance mm	: +- 0.05	+ Check tolerance + cm3/1000S. + Spreed	: +- 5.0
Rated speed rpm rack travel mm		Tolerance cm3/1000 strokes	: 8.0
Tolerance mm	: + 0.10	+ Check tolerance + cm3/1000S.	: 12.0
Rated speed rpm rack travel mm Tolerance mm	: 12.55	+ Aneroid pressure	
Rated speed rpm	: 500	hPa Rated speed rpm	: - : 600
rack travel mm Tolerance mm	: 12.05 : + 0.10	Del. quantity cm3/1000 strokes	: 195.0
Rated speed rpm		+ Tolerance + cm3/1000 strokes	: + 1.0
rack travel mm Tolerance mm	: 13.40 : + 0.10	+ Check tolerance + cm3/1000s. + Spreed	: + 4.0
ANEROID/ALTITUDE		Tolerance cm3/1000 strokes	: 8.0
COMPENSATOR TEST		+ Check tolerance + cm3/1000s.	: 12.0
SETTING		Ŧ	

# LOW IDLE

Rated speed rpm	:		275	
Rack travel in mm	•	_	3.80 0.10	
Tolerance mm Del. quantity	•	+	0.10	
cm3/1000 strokes	:		17.0	
Tolerance				
cm3/1000 strokes	:	+-	3.0	
Check tolerance cm3/1000s.	:	+-	6.0	
Spreed				
Tolerance cm3/1000 strokes	:		8.0	
Check tolerance cm3/1000s.	:		12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 16.09.97 Test oil : ISO 4113

Combination No. : 0 402 646 668

Injection pump

Pump designation : PE6P120A320RS7412 EP type number : 0 412 626 953

Governor

Governer design. : RQV275...1000PA1278

: -1K

Governer no. : 0 421 815 510

Cust. part No. : 1310220/1

Customer—spec. information Customer : DAF

Motor : XF 280 M Power KW : 280.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. l/h : 145 Tolerance l/h : ← 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.45 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.60

G20

Tolerance mm : + 0.05  Del. quantity	+ guide sleeve + travel mm : 3.92 + Tolerance mm : +- 0.25
cm3/1000 strokes : 303.0	Rated speed rpm : 1310
Tolerance cm3/1000 strokes : + 1.0	guide sleeve travel mm : 13.50 Tolerance mm : + 0.50
Check tolerance cm3/1000s. : + 4.0	GUIDE SLEEVE POSITION
Spreed	T GOIDE SEELVE POSITION
Tolerance cm3/1000 strokes : 5.0 Check tolerance	control lever position degree : - 1 Rated speed rpm : 1171
cm3/1000s. : 9.0	Rack travel in mm : 10.70 Tolerance mm : + 2.00
Rated speed rpm : 275	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 3.90 Tolerance mm : +- 0.10 Del. quantity	Rated speed rpm : 750 Aneroid pressure hPa : 1500
cm3/1000 strokes : 17.0 Tolerance	Del. quantity cm3/1000 strokes : 303.0
cm3/1000 strokes : + 3.0 Check tolerance	tolerance cm3/1000 strokes : +- 1.0
cm3/1000S. : +- 6.0 Spreed Tolerance	+ Check tolerance + cm3/1000s. : +- 4.0 + Spreed
cm3/1000 strokes : 8.0 Check tolerance	Tolerance cm3/1000 strokes : 5.0
cm3/1000s. : 12.0	Check tolerance cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
Rated speed rpm : 1062 guide sleeve	position degree : 118.0 tolerance degree : + 4.0
guide steeve travel mm : 10.04 Tolerance mm : + 0.15	RATED SPEED rack travel mm : 11.35 Rated speed rpm : 1050
Rated speed rpm : 275 guide sleeve	+ Tolerance 1/min : + 5 + Check
guide steeve travel mm : 2.04 Tolerance mm : + 0.20	speed 1/min : + 10
Rated speed rpm : 697 guide sleeve	rack travel mm : 4.00 Rated speed rpm : 1150 Tolerance 1/min : + 15
guide sleeve travel mm : 6.48 Tolerance mm : +- 0.25	Check speed 1/min : +- 20
Rated speed rpm : 400	rack travel mm : 0.50
G21	

Tolerance mm Rated speed rpm	: ← 0.50 : 1275
LOW IDLE	
control lever position degree tolerance degree	: 71.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 175
CRT mm min.	: > 6.50
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 275 : 3.90 : ← 0.10
Rated speed rpm	: 300
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 750 : 12.60 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm Tolerance mm	: 900 : 12.60 : ← 0.10
Rated speed rpm rack travel mm Tolerance mm	: 700 : 12.30 : ← 0.10
Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm Tolerance mm	: 500 : 11.40 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 1000 : 12.35 : ← 0.10

ANEROID/ALTITUDE	
COMPENSATOR TEST	

# SETTING

Rated speed rpm	: 775
Pressure hPa	: 1500
rack travel mm	: 12.65
Tolerance mm	: + 0.05
Rated speed rom Pressure hPa rack travel mm Tolerance mm	: 775 : - 8.50 : + 0.20
MEASUREMENT	
Rated speed rpm	: 775
Pressure hPa	: 450
rask travel mm	: 12.10
Tolerance mm	: + 0.05
Pressure hPa	: 170
rack travel mm	: 9.90
Tolerance mm	: + 0.10

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa Rated speed rpm	:	1500 980
Del. quantity cm3/1000 strokes	:	272.0
Tolerance cm3/1000 strokes	: +-	2.0
Check tolerance cm3/1000s.	: +	5.0
Spreed Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000s.	:	12.0
	·	
Aneroid pressure	•	_

Aneroid pressure			
hPa	:		_
Rated speed rpm	:		600
Del. quantity			
cm3/1000 strokes			184.0
Tolerance			
cm3/1000 strokes	:	+	1.0
Check tolerance			
cm3/1000s.	:	+-	4.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s.

12.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm: 3.90

Tolerance mm :  $\leftarrow$  0.10

Del. quantity cm3/1000 strokes :

17.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s.

: + 6.0

Spreed

Tolerance

cm3/1000 strokes :

8.0

Check tolerance

cm3/1000s.

12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 12.09.97 : ISO 4113

Combination No. : 0 402 646 967

Injection pump

Pump designation : PE6P130A720RS7150

: -10

EP type number : 0 412 636 831

Governor

Governer design. : RQV250...900PA881-1

Governer no.

: 0 421 813 982

Cust. part No. : 864988-P04 v.06.97

Customer-spec. information

Customer

: PENTA

Motor

: TAMD 162 C

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration

damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C

Tolerance °C

: 40 : +- 2.

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

x inside diameter : 2.5 x length mm : 1000

Test lines : 1 680 750 075

Outside diameter : 8.0

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 3.65
Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 9.40 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : **←** 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

	+	Tolerance mm : +- 0.30
Rack travel in mm Tolerance mm		Rated speed rpm : 700 guide sleeve travel mm : 4.80
Del. quantity cm3/1000 strokes	: 336.0	Tolerance mm : +- 0.30
Tolerance cm3/1000 strokes	: + 1.5	Rated speed rpm : 985 guide sleeve travel mm : 8.60
Check tolerance cm3/1000s.	: +- 5.0	Tolerance mm : + 0.20
Spreed		GUIDE SLEEVE POSITION
Tolerance cm3/1000 strokes	: 6.0	control lever position degree : - 1 Rated speed rpm : 980
Check tolerance cm3/1000s.	: 10.0	Rack travel in mm : 16.50 Tolerance mm : + 1.30
Rated speed rpm	: 250	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm Tolerance mm Del. quantity	: 4.20 : ← 0.10	Rated speed rpm : 700 Aneroid pressure hPa : 1000
cm3/1000 strokes Tolerance	: 19.5	Del. quantity cm3/1000 strokes : 336.0
	: +- 2.5	Tolerance cm3/1000 strokes : + 1.5
cm3/1000s. Spreed	: +- 5.0	Check tolerance cm3/1000s. : +- 5.0
Tolerance cm3/1000 strokes Check tolerance	+	Spreed Tolerance cm3/1000 strokes : 6.0
cm3/1000s.	: 8.0 +	Check tolerance cm3/1000S. : 10.0
(B) SETTING OF INJUNITH GOVERNOR	ECTION PUMP	
WITH GOVERNOR		CONTROL LEVER
GUIDE SLEEVE TRAVE		control lever position degree : 118.0
Rated speed rpm : guide sleeve	ì	tolerance degree : +- 4.0
travel mm Tolerance mm	: 7.70 : + 0.10	RATED SPEED rack travel mm : 10.60 Rated speed rpm : 930
مرية مام مأ ممريم	: 250	Tolerance 1/min : +- 5
	: 1.10 : +- 0.20	rack travel mm : 4.00 Rated speed rpm : 1000 Tolerance 1/min : + 15
Rated speed rpm :	: 350	
guide sleeve travel mn	: 2.30	rack travel mm : 0.50 Tolerance mm : + 0.50

Rated speed rpm :	1100
LOW IDLE	
control lever position degree : tolerance degree :	67.0
Setting point w/out	bumper spring
Rated speed rpm :	150
CRT mm min.	> 6.00
Testing:	
Rated speed rpm : rack travel mm : Tolerance mm :	250 4.20 + 0.10
Rated speed rpm :	300
TORQUE CONTROL Rated speed rpm : rack travel mm : Tolerance mm :	700 11.60 + 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm : Pressure hPa : rack travel mm : Tolerance mm :	500 1000 11.60 + 0.05
Rated speed rpm : Pressure hPa : rack travel mm : Tolerance mm :	500 9.40 + 0.20

Aneroid pressure hPa Rated speed rpm	:		- 700
Del. quantity cm3/1000 strokes Tolerance	:		228.0
cm3/1000 strokes Check tolerance	:	+-	1.5
cm3/1000s.	:	+-	5.0
LOW IDLE			
Rated speed rpm	:		250
Rack travel in mm Tolerance mm Del. quantity	:	+-	4.20 0.10
cm3/1000 strokes Tolerance	:		19.5
cm3/1000 strokes Check tolerance	:	+-	2.5
cm3/1000s. Spreed Tolerance	:	+	5.0
cm3/1000 strokes Check tolerance	:		5.0
cm3/1000s.	:		8.0

FUEL DELIVERY CHARACTERISTICS

End of test specification sheet

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 400 rack travel mm : 9.80 Tolerance mm : + 0.20

Pressure hPa : 680 rack travel mm : 11.30 Tolerance mm : + 0.05

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.09.97 Test oil : ISO 4113

Combination No. : 0 402 744 803B

Injection pump

Pump designation : PES4P120A320RS7312

: -1

EP type number : 0 412 724 803

Governor

Governer design. : RQV400...1200PA1131

: -1

Governer no. : 0 421 814 154

Cust. part No. : 51.11103-7579

Customer-spec. information

Customer : MAN

: DO824 LOH O5 : 114.0 Motor

Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

: 40 temp. °C Tolerance  $^{\circ}C$  : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 110 Tolerance L/h : + 10.0

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 5.25 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 13.00 Tolerance mm :  $\leftarrow$  0.50

Firing order : 1-3-4-2

: 0-90-180-270 : +- 0.50 Phasing

Tolerance

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

Tolerance :  $\leftarrow$  0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm: 12.80

Tolerance mm : + 0.05

	ì	muida al cour
tol miontitu		guide sleeve
Sel. quantity	. 200.0	travel mm : 3.53
cm3/1000 strokes	: 209.0	Tolerance mm : +- 0.25
Tolerance	+	Rated speed rpm : 1490
cm3/1000 strokes	: + 1.0 +	guide sleeve
		travel mm : 13.50
Check tolerance		Tolerance mm : + 0.50
cm3/1000s.	: + 4.0 +	
Spreed		FULL LOAD DELIVERY AT FULL LOAD STOP
opi eed		FOLL EURO DELIVERY AT FOLL LOAD STOP
Tolonopoo	Ť	Data damage at 1000
Tolerance		Rated speed rpm : 1000
cm3/1000 strokes	: 8.0	Aneroid pressure
		hPa : 1200
Check tolerance	+	Del. quantity
cm3/1000s.	: 12.0	cm3/1000 strokes : 209.0
	+	Tolerance
	+	cm3/1000 strokes : +- 1.0
	1	Check tolerance
Rated speed rpm	: 400	cm3/1000S. : +- 4.0
		Spreed
Rack travet in mm	n: 4.80	Tolerance
Tolerance mm	•	cm3/1090 strokes : 8.0
Del. quantity	7	Check tolerance
	: 45.0	
cm3/1000 strokes	: 45.0	cm3/1000s. : 12.0
Tolerance	†	
cm3/1000 strokes	: + 3.0	
Check tolerance	+	
cm3/1000s.	: + 6.0 +	CONTROL LEVER
Spreed	+	
Tolerance	+	control lever
cm3/1000 strokes	: 8.0	position degree : 302.0
Check tolerance	1	tolerance degree : + 4.0
cm3/1000s.	: 12.0	toter unite degree
CHS/ 10000:	1	RATED SPEED
	T	
(D) CETTING OF TA	JUECTION DUMP	
(B) SETTING OF IN	TECTION POMP	Rated speed rpm : 1245
WITH GOVERNOR		- 1 4/ 1
	Ť	Tolerance 1/min : +- 8
	Ţ	
	<u>_</u>	rack travel mm : 4.00
GUIDE SLEEVE TRAV		rack travel mm : 4.00 Rated speed rpm : 1332
	+	rack travel mm : 4.00
GUIDE SLEEVE TRAV	+	rack travel mm : 4.00 Rated speed rpm : 1332
	+	rack travel mm : 4.00 Rated speed rpm : 1332
Rated speed rpm guide sleeve	: 1261	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15 rack travel mm : 0.50
Rated speed rpm guide sleeve travel mm	: 1261 : 10.26	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50
Rated speed rpm guide sleeve	: 1261	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15 rack travel mm : 0.50
Rated speed rpm guide sleeve travel mm Tolerance mm	: 1261 : 10.26 : ← 0.15	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50
Rated speed rpm guide sleeve travel mm Tolerance mm	: 1261 : 10.26	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	: 1261 : 10.26 : ← 0.15 : 400	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm	: 1261 : 10.26 : + 0.15 : 400 : 2.21	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1470
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	: 1261 : 10.26 : ← 0.15 : 400	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	: 1261 : 10.26 : + 0.15 : 400 : 2.21 : + 0.20	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1470
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	: 1261 : 10.26 : + 0.15 : 400 : 2.21	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1470  LOW IDLE
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve	: 1261 : 10.26 : + 0.15 : 400 : 2.21 : +- 0.20 : 822	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1470  LOW IDLE  control lever
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm	: 1261 : 10.26 : ← 0.15 : 400 : 2.21 : + 0.20 : 822 : 5.79	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1470  LOW IDLE  control lever position degree : 262.0
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve	: 1261 : 10.26 : + 0.15 : 400 : 2.21 : +- 0.20 : 822	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1470  LOW IDLE  control lever
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm	: 1261 : 10.26 : + 0.15 : 400 : 2.21 : + 0.20 : 822 : 5.79 : + 0.25	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1470  LOW IDLE  control lever position degree : 262.0 tolerance degree : +- 4.0
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm	: 1261 : 10.26 : ← 0.15 : 400 : 2.21 : + 0.20 : 822 : 5.79	rack travel mm : 4.00 Rated speed rpm : 1332 Tolerance 1/min : +- 15  rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1470  LOW IDLE  control lever position degree : 262.0

Rated speed rpm	* 300	+ Check
kateu speeu i pili	. 500	speed 1/min : < 260
CRT mm min.	: > 8.85	+ Check
Testing:		+ speed 1/min : > 340
Rated speed rpm	: 400	FUEL DELIVERY CHARACTERISTICS
rack travel mm Tolerance mm	: 4.80	†
loterance mm	: + 0.10	Aneroid pressure
TORQUE CONTROL	4000	Rated speed rpm : 1200
Rated speed rpm rack travel mm		+ Del. quantity + cm3/1000 strokes : 206.0
Tolerance mm		Tolerance
		cm3/1000 strokes : +- 3.0
Rated speed rpm	: 1200	Check tolerance
rack travel mm Tolerance mm	: 12.80 : + 0.10	+ cm3/1000s. : + 6.0
TO COT AIR TOO TIME	0110	
Rated speed rpm	: 700	+ Aneroid pressure
rack travel mm Tolerance mm	: 12.80 · +- 0.10	+ hPa : 1200 + Rated speed rpm : 700
TO CET AT ICE THAT	0.10	+ Del. quantity
ANEROID/ALTITUDE		+ Tolerance
COMPENSATOR TEST		+ cm3/1000 strokes : +- 3.0 + Check tolerance
		- cm3/1000s. : +- 6.0
SETTING		+
Rated speed rpm	: 500	Aneroid pressure
Pressure hPa	: 1200	hPa : -
rack travel mm	: 12.80	Rated speed rpm : 500
Tolerance mm	: +- 0.05	Del. quantity
Rated speed rpm	: 500	+ cm3/1000 strokes : 136.0 + Tolerance
Pressure hPa	· -	+ cm3/1000 strokes : ← 1.0
	: 8.50	+ Check tolerance
Tolerance mm	: +- 0.15	- cm3/1000s. : +- 4.0
MEASUREMENT		
Rated speed rpm	: 500	STARTING FUEL DELIVERY
Pressure hPa	: 450	Rated speed rpm : 100
rack travel mm		- Del. quantity
Tolerance mm	: +- 0.20	- cm3/1000 strokes : 190.0 - Tolerance
Pressure hPa	: 140	cm3/1000 strokes : +- 15.0
rack travel mm	: 8.90	+ Check tolerance
Tolerance mm	: +- 0.15	+ cភ3/1000s. : + 19.0
Start interlock		<del></del> +
p-4 d		101.7015
Rated speed rpm Rated speed rpm	: < 280 : > 320	+ LOW IDLE
nacea speed rpm	500	Rated speed rpm : 400
		<u> </u>

Rack travel in mm Tolerance mm	: :	+-	4.80 0.10
Del. quantity cm3/1000 strokes Tolerance	:		45.0
cm3/1000 strokes Check tolerance	:	+-	3.0
cm3/1000s.	:	+-	6.0
Tolerarice cm3/1000 strokes	:		8.0
Check tolerance cm3/1000s.	:		12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 12.09.97 : ISO 4113 Edition Test oil

Combination No. : 0 402 746 604

Injection pump

Pump designation : PES6P12DA72DRS7366 EP type number : 0 412 726 933

Governor

Governer design. : RQV275...1100PA1208

: -1K

Governer no. : 0 421 815 492

Cust. part No. :

Customer-spec. information

Customer : IVECO-FRANCE Motor : 8460.41c-3000

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : Tolerance bar : + 0.1

Overflow quantity

min. L/h : 160 Tolerance L/h : + 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Check

tolerance °NW : + 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 11.30

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes	: 201.0	Tolerance mm : +- 0.25
Tolerance cm3/1000 strokes	: + 1.0	Rated speed rpm : 1440 guide sleeve travel mm : 13.50
Check tolerance		Tolerance mm : + 0.50
cm3/1000s.	: + 4.0	GUIDE SLEEVE POSITION
Spreed	1	
Tolerance cm3/1000 strokes	: 5.0	control lever position degree : - 1 Rated speed rpm : 1295
Check tolerance cm3/1000s.	: 9.0	Rack travel in mm : 10.65 Tolerance mm : + 2.70
Rated speed rpm	: 275	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in num Tolerance mum		Rated speed rpm : 600 Aneroid pressure
Del. quantity cm3/1000 strokes Tolerance	: 19.0	hPa : 1200 Del. quantity cm3/1000 strokes : 201.0
cm3/1000 strokes Check tolerance	+	Tolerance cm3/1000 strokes : +- 1.0
cm3/1000s. Spreed	: + 6.0	Check tolerance cm3/1000s. : +- 4.0
Tolerance cm3/1000 strokes Check tolerance	: 8.0	Spreed Tolerance cm3/1000 strokes : 5.0
cm3/1000s.	: 12.0	Check tolerance cm3/1000s. : 9.0
(B) SETTING OF IN	JECTION PUMP	
	†	CONTROL LEVER
GUIDE SLEEVE TRAV	EL +	control lever
Rated speed rpm guide sleeve	: 1180	position degree : 118.0 tolerance degree : +- 4.0
travel mm	: 10.07	RATED SPEED
Tolerance mm	: + 0.15	rack travel mm : 10.50 Rated speed rpm : 1145
Rated speed rpm guide sleeve travel mm	: 275 : 1.70	Tolerance 1/min : +- 5 Check
Tolerance mm	: + 0.20	speed 1/min : +- 10  rack travel mm : 4.00
Rated speed rpm guide sleeve	: 802	Rated speed rpm : 1245 Tolerance 1/min : +- 15
travel mm Tolerance mm	: 6.49 : + 0.25	Check speed 1/min : +- 20
Rated speed rpm guide sleeve	: 460	rack travel mm : 0.50 Tolerance mm : +- 0.50
travel mm	: 3.77	Rated speed rpm : 1350

H04

LOW IDLE	
control lever position degree tolerance degree	: 75.0 : +- 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 175
CRT mm min.	: > 7.90
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 275 : 6.40 : ← 0.10
Rated speed rpm	: 315
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 600 : 11.30 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 11.55 : ← 0.15
Rated speed rpm rack travel mm Tolerance mm	: 800 : 11.35 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1200 : 11.30 : + 0.10
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : − : 9.30 : ← 0.20
MEASUREMENT	
Rated speed rpm	: 500

Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm Tolerance mm	: 210 : 9.80 : + 0.30 : 300 : 10.65 : + 0.20	
Start interlock		
Rated speed rpm Rated speed rpm	: > 180 : < 220	
Check speed 1/min	: > 160	
Check speed 1/min	: < 240	
FUEL DELIVERY CHA	RACTERISTICS	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.		
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.		
STARTING FUEL DELIVERY  Set starting CRT at K-cam.		
Rated speed rpm rack travel mm Tolerance mm Del. Guantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.		

# LOW IDLE

Rated speed rpm	:	275	
Rack travel in mm	: +-	6.40 0.10	
Del. quantity	•	0.10	
cm3/1000 strokes	:	19.0	
Tolerance			
cm3/1000 strokes	: +	3.0	
Check tolerance			
cm3/1000s.	: +-	6.0	
Spreed			
Tolerance		0.0	
01107 1000 011 011C0	:	8.0	
Check tolerance		12.0	
CIID/ 10000.	•	14.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 16.09.97 : ISO 4113

Combination No. : 0 402 746 9100

Injection pump

Pump designation : PES6P120A720LS7209

: -1

EP type number : 0 412 726 849

Governor

Governer design. : RQV300...1100PA1006K

Governer no. : 0 421 315 283

Cust. part No. : 51.11103-7072

Customer-spec. information

Customer : MAN

: D 2866 LE 40 Motor

Power KW

: 300.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.85
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 13.00 Tolerance mm : +- 0.50

Firing order : \_6- 2- 4- 1- 5-

: 3

Phasing : 0-60-120-180-240

: -300

Tolerance : ← 0.50

Check

: +- 0.75 tolerance °NW

# BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.40 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 234.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: +- 4.0

Spreed

Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 9.0
Rated speed rpm	: 300
Rack travel in mm	n: 5.00
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 23.0
Tolerance cm3/1000 strokes	: +- 3.0
Check tolerance	
cm3/1000S. Spreed	: +- 6.0
Tolerance cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000s.	: 12.0
(B) SETTING OF IN WITH GOVERNOR	JECTION PUMP
WITH GOVERNOR  GUIDE SLEEVE TRAV	/EL
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm	/EL
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve	/EL
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm	/EL : 1156 : 10.05 : + 0.15
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve	/EL : 1156 : 10.05 : + 0.15
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm	/EL : 1156 : 10.05 : ← 0.15 : 300
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm Guide sleeve travel mm Tolerance mm	/EL : 1156 : 10.05 : ← 0.15 : 300 : 1.77 : ← 0.20
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve	'EL : 1156 : 10.05 : ← 0.15 : 300 : 1.77 : ← 0.20 : 832
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm	/EL : 1156 : 10.05 : ← 0.15 : 300 : 1.77 : ← 0.20
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm	/EL : 1156 : 10.05 : + 0.15 : 300 : 1.77 : + 0.20 : 832 : 6.98 : + 0.25
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm	/EL : 1156 : 10.05 : ← 0.15 : 300 : 1.77 : ← 0.20 : 832 : 6.98 : ← 0.25 : 500
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm	/EL : 1156 : 10.05 : ← 0.15 : 300 : 1.77 : ← 0.20 : 832 : 6.98 : ← 0.25 : 500
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Tolerance mm  Tolerance mm	### #################################
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	### #################################
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rpm guide sleeve travel mm	### #################################

Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: 1100 : 1200 : 234.0 : + 1.0 : + 4.0
Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 5.0 : 9.0
CONTROL LEVER	
control lever position degree tolerance degree	: 118.0 : +- 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 11.40 : 1145 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1242 : +- 15
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : +- 0.50 : 1400
LOW IDLE	
control lever position degree tolerance degree	: 72.0 : +- 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 7.27
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 5.00 : +- 0.10

TORQUE CONTROL

Rated speed rpm rack travel mm Tolerance mm	: 12.40	<pre>Del. quantity cm3/1000 strokes : 210.0 Tolerance cm3/1000 strokes : +- 3.0</pre>
Rated speed rpm rack travel mm Tolerance mm	: 900 : 11.40 : + 0.10	Check tolerance cm3/1000s. : +- 6.0
Rated speed rpm rack travel mm Tolerance mm	: 700 : 10.80 : + 0.10	Aneroid pressure hPa : 1200 Rated speed rpm : 700 Del. quantity cm3/1000 strokes : 207.0
ANEROID/ALTITUDE COMPENSATOR TEST		Tolerance cm3/1000 strokes : +- 3.0 Check tolerance
SETTING	‡	cm3/1000s. : +- 6.0
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1100 : 1200 : 12.40 : + 0.05	Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 12.40 : + 0.05 : 1100 :	<pre>cm3/1000 strokes : 167.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0</pre>
MEASUREMENT	†	
Rated speed rom	: 1100	STARTING FUEL DELIVERY
Pressure hPa rack travel mm Tolerance mm	: 10.55	Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 200.0
Pressure hPa rack travel mm Tolerance mm	: 100 : 9.45 : + 0.05	Tolerance cm3/1000 strokes : \( \to \) 15.0 Check tolerance cm3/1000s. : \( \to \) 19.0
Start interlock		
Rated speed rpm Rated speed rpm		LOW IDLE
Check speed 1/min	: > 80	Rated speed rpm : 300  Rack travel in mm : 5.00
Check speed 1/min	: < 240	Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 23.0
FUEL DELIVERY CHA	ARACTERISTICS	Tolerance cm3/1000 strokes : +- 3.0
Aneroid pressure		Check tolerance cm3/1000s. : +- 6.0 Spreed
hPa Rated speed rpm	: 1200 : 900	Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s.	:	12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 16.09.97 : ISO 4113

Combination No. : 0 402 746 910E

Injection pump

Pump designation : PES6P120A720LS7209

: -1

EP type number : 0 412 726 849

Governor

Governer design. : RQV300...1100PA1006K

Governer no.

: 0 421 815 283

Cust. part No. : 51.11103-7073

Customer—spec. information

Customer : MAN

Motor

: D 2866 LXE 40

Power KW

: 280.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

Tolerance °C

Overflow valve : 1 417 413 025

Inlet press. bar :

1.5

Tolerance bar  $: \leftarrow 0.1$ 

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar

: +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm :

600

#### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar :

Tolerance bar : +- 1.0

Prestroke mm : 4.85 Tolerance mm : +- 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 13.00

Tolerance mm : + 0.50

Firing order : 6-2-4-1-5-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

# BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.90

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 219.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s.

: +- 4.0

Spreed

Tolerance	<u> </u>	Rated speed rpm : 1100 Aneroid pressure
cm3/1000 strokes	: 5.0	hPa : 1200 Del. quantity
Check tolerance cm3/1000s.	: 9.0	cm3/1000 strokes : 219.0 Tolerance
10000	·	cm3/1000 strokes : +- 1.0 Check tolerance
Rated speed rpm	: 300	cm3/1000s. : +- 4.0 Spreed
, ,	į.	Tolerance
Rack travel in mm		cm3/1000 strokes : 5.0
Tolerance mm Del. quantity	: + 0.10	Check tolerance cm3/1000S. : 9.0
cm3/1000 strokes Tolerance	: 23.0	
cm3/1000 strokes	: + 3.0	
Check tolerance cm3/1000s.	: + 6.0	CONTROL LEVER
Spreed	<del>}</del>	control lever
Tolerance	+	position degree : 118.0
cm3/1000 strokes	: 8.0	tolerance degree : +- 4.0
Check tolerance cm3/1000s.	: 12.0	RATED SPEED
(1137 10000:		rack travel mm : 10.90
	1	Rated speed rpm : 1145
(B) SETTING OF IN	JECTION PUMP	Tolerance 1/min : + 5
WITH GOVERNOR	+	
	+	rack travel mm : 4.00
GUIDE SLEEVE TRAVI		Rated speed rpm : 1236 Tolerance 1/min : +- 15
GOIDE SEEVE TRAVE	I	Toterance Trillin : +- 15
Rated speed rpm	: 1156	rack travel mm : 0.50
guide sleeve	+	Tolerance mm : + 0.50
travel mm	: 10.05	Rated speed rpm : 1400
Tolerance mm	: + 0.15	
Rated speed rpm	: 300	
guide sleeve	. 4 77	LOWER
travel mm Tolerance mm	: 1.77 : + 0.20	LOW IDLE
rocerance imi	1	
Rated speed rpm	: 832	control lever
guide sleeve	+	position degree : 72.0
travel mm	: 6.98	tolerance degree : +- 4.0
Tolerance mm	: + 0.25	Sotting point Wort human apping
Rated speed rpm	: 500	Setting point w/out bumper spring
guide sleeve	1	Rated speed rpm : 200
travel mm	: 3.78	
Tolerance mm	: + 0.25	CRT mm min. :> 7.27
Rated speed rpm	: 1420	Testing:
guide sleeve	1	
travel mm	: 13.50	Rated speed rpm : 300
Tolerance mm	: + 0.50	rack travel mm : 5.00
	+	Tolerance mm : + 0.10
	+	
FULL LOAD DELIVERY	Y AT FULL LOAD STOP	
	+	TORQUE CONTROL

Rated speed rpm	: 1100	+ Del. quantity
rack travel mm		+ cm3/1000 strokes : 196.0
Tolerance mm	: ← 0.05	+ Tolerance
	,	+ cm3/1000 strokes : +- 3.0
Rated speed rpm	• 900	Check tolerance
rack travel mm		cm3/1000s. : + 6.0
Tolerance mm		T CIII37 10003 — 0.0
roterance min	. += 0.10	<del>,</del>
Poted anod mm	: 700	Annaid management
Rated speed rpm		Aneroid pressure
rack travel mm		+ hPa : 1200
Tolerance mm	: ← 0.10	+ Rated speed rpm : 700
		+ Del. quantity
445000 (4450000	<del></del>	
ANEROID/ALTITUDE		+ Tolerance
COMPENSATOR TEST		t cm3/1000 strokes : +- 3.0
		† Check tolerance
		+  cm3/1000s. : +- 6.0
SETTING		†
		+
Rated speed rpm		+ Aneroid pressure
Pressure hPa	: 1200	+ hPa : -
rack travel mm	: 11.90	+ Rated speed rpm : 500
Tolerance mm	: <b>←</b> 0.05	+ Del. quantity
		+ cm3/1000 strokes : 167.0
Rated speed rpm	: 1100	+ Tolerance
Pressure hPa		cm3/1000 strokes : +- 1.0
rack travel mm		+ Check tolerance
Tolerance mm		+ cm3/1000s. : +- 4.0
TOTAL GIFTE TIME	0.10	T (11137 10003: 1 4.0
MEASUREMENT		I
TIEAGONE IEIT		
Rated speed rpm	: 1100	T STARTING FUEL DELIVERY
hated speed rpill	. 1100	T STANTING FOEL DELIVERY
Pressure hPa	: 300	Rated speed rpm : 100
	: 10.55	• • • • • • • • • • • • • • • • • • • •
rack travel mm		+ Del. quantity
Tolerance mm	: +- 0.15	cm3/1000 strokes : 200.0
	400	† Tolerance
Pressure hPa	: 100	+ cm3/1000 strokes : + 15.0
rack travel mm	: 9.45	+ Check tolerance
Tolerance mm	: +- 0.05	+ cm3/1000s. : +- 19.0
		†
	****** <u> </u>	+
Start interlock		†
Rated speed rpm		+ LOW IDLE
Rated speed rpm	: < 220	†
		+ Rated speed rpm : 300
Check		+
speed 1/min	: > 80	† Rack travel in mm : 5.00
Check		† Tolerance mm : +- 0.10
speed 1/min	: < 240	+ Del. quantity
•		+ cm3/1000 strokes : 23.0
<del></del>		+ Tolerance
FUEL DELIVERY CHA	ARACTERISTICS	+ cm3/1000 strokes : +- 3.0
	• · = · - · · · • · • · ·	Check tolerance
<del></del>	<del></del>	+ cm3/1000s. : +- 6.0
Aneroid pressure		Spreed
hPa	: 1200	Tolerance
Rated speed rpm		cm3/1000 strokes : 8.0
varen sheen thu	. 700	I ciiis/ 1000 strokes . o.u
		Т

Check tolerance cm3/1000s.	;	12.0	
	<del></del>		<del></del>

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 16.09.97 Edition Test oil : ISO 4113

Combination No. : 0 402 746 910F

Injection pump

Pump designation : PES6P120A720LS7209

: -1

EP type number : 0 412 726 849

Governor

Governer design. : RQV300...1100PA1006K

Governer no. : 0 421 815 283

Cust. part No. : 51.11103-7084

Customer-spec. information

Customer : MAN Motor : D 28 : D 2866 LXE 40

Power KW : 294.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

40 temp. °C Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.85 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 13.00 Tolerance mm : +- 0.50

Firing order : 6-2-4-1-5-

: 3

Phasing : 0-60-120-180-240

: -300

Tolerance : ← 0.50

Check

tolerance °NW : +- 0.75

#### BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.10 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 257.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

: +- 4.0 cm3/1000s.

Spreed

Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 9.0
Rated speed rpm	: 300
Rack travel in mor Tolerance mon Del. quantity	5.00 : + 0.10
cm3/1000 strokes Tolerance	: 23.0
cm3/1000 strokes Check tolerance	: + 3.0
cm3/1000s. Spreed	: ← 6.0
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
GUIDE SLEEVE TRAV	
Rated speed rpm guide sleeve travel mm Tolerance mm	: 1107 : 10.68 : + 0.15
Rated speed rpm	: 300
guide sleeve travel mm Tolerance mm	: 1.61 : + 0.20
Rated speed rpm	: 817
guide sleeve travel mm Tolerance mm	: 7.02 : + 0.25
Rated speed rpm	: 500
guide sleeve travel mm Tolerance mm	: 3.62 : + 0.25
Rated speed rpm guide sleeve	: 1290
travel mm Tolerance mm	: 13.50 : +- 0.50
FULL LOAD DELIVER	Y AT FULL LOAD STOP

Rated speed rpm Aneroid pressure hPa Del. quantity	: 1050
	: 1200
cm3/1000 strokes	: 257.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000s.	: + 4.0
Spreed Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 9.0
CIII 37 10000.	. 7.0
CONTROL LEVER	
control lever	400.0
position degree tolerance degree	: 120.0 : + 4.0
RATED SPEED	. 42.40
rack travel mm Rated speed rpm	: 12.10 : 1095
Tolerance 1/min	: +- 5
rack travel mm Rated speed rpm	: 4.00 : 1172
Tolerance 1/min	: +- 15
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : +- 0.50 : 1300
Nated Speed 1 pill	. 1500
LOW IDLE	
control lever	
position degree tolerance degree	: 72.0 : +~ 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 7.18
Testing:	
Rated speed rpm	: 300
rack travel mm Tolerance mm	: 5.00 : +- 0.10
TORQUE CONTROL	
. 311432 301111102	

Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	: 13.10 : + 0.05 : 800	Del. quantity cm3/1000 strokes : 238.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0
Rated speed rpm rack travel mm Tolerance mm	: 500 : 11.30 : ← 0.10	Aneroid pressure hPa : 1200 Rated speed rpm : 500 Del. quantity
ANEROID/ALTITUDE COMPENSATOR TEST	+	cm3/1000 strokes : 242.0 Tolerance cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 6.0
SETTING	Ţ	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1050 : 1200 : 13.10 : + 0.05	Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	9.15	<pre>cm3/1000 strokes : 167.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0</pre>
	+	4.0
MEASUREMENT	İ	
Rated speed rpm	: 1050	STARTING FUEL DELIVERY
Pressure hPa rack travel mm Tolerance mm	: 10.55	Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 200.0
Pressure hPa rack travel mm Tolerance mm	: 100 : 9.45 : + 0.05	Tolerance cm3/1000 strokes : +- 15.0 Check tolerance cm3/1000s. : +- 19.0
Start interlock	+	
Rated speed rpm Rated speed rpm		LOW IDLE
Check speed 1/min Check speed 1/min	: > 80 : < 240	Rated speed rpm : 300  Rack travel in mm : 5.00  Tolerance mm : + 0.10  Del. quantity  cm3/1000 strokes : 23.0
FUEL DELIVERY CHA	ARACTERISTICS +	Tolerance cm3/1000 strokes : +- 3.0
Aneroid pressure	: 1200	Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance
Rated speed rpm	: 800	cm3/1000 strokes : 8.0

Check tolerance cm3/1000s.	:	12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 16.09.97 : ISO 4113

Combination No. : 0 402 746 9106

Injection pump

Pump designation : PES6P120A720LS7209

: -1

EP type number : 0 412 726 849

Governor

Governer design. : RQV300...1100PA1006K

Governer no. : 0 421 815 283

Cust. part No. : 51.11103-7074

Customer-spec. information

Customer : MAN

Motor

: D 2866 LXE 40

Power KW

: 250.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

Tolerance °C

: 40 : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

Tolerance bar

: 208.5 : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 600

#### **RFMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.85 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 13.00

Tolerance mm: +-0.50

Firing order : 6-2-4-1-5-

Phasing : 0-60-120-180-240

: -300

Tolerance : **←** 0.50

Check

tolerance °NW : +- 0.75

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.00

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 229.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: +- 4.0

Spreed

Tolerance cm3/1000 strokes	: 5.0	
Check tolerance cm3/1000s.	: 9.0	
Rated speed rpm	: 300	
Rack travel in mn Tolerance mm	5.00 : + 0.10	
Del. quantity cm3/1000 strokes	: 23.0	
Tolerance cm3/1000 strokes	: <del>+</del> 3.0	
Check tolerance cm3/1000s. Spreed	: ← 6.0	
Tolerance cm3/1000 strokes Check tolerance	: 8.0	
cm3/1000s.	: 12.0	
GUIDE SLEEVE TRAV Rated speed rpm guide sleeve	/EL : 958	
travel mm Tolerance mm	: 9.68 : ← 0.15	
Rated speed rpm guide sleeve	: 300	
travel mm Tolerance mm	: 1.61 : + 0.20	
Rated speed rpm	: 744	
guide sleeve travel mm	: 6.92	
Tolerance mm	: + 0.25	
Rated speed rpm guide sleeve	: 490	
travel mm	: 3.75 : + 0.25	
Tolerance mm		
Rated speed rpm guide sleeve	: 1190	
travel mm Tolerance mm	: 13.50 : + 0.50	
roterance min	0.50	
FULL LOAD DELIVERY AT FULL LOAD STOP		

Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: 900 : 1200 : 229.0 : + 1.0 : + 4.0 : 5.0	
Check tolerance cm3/1000s.	: 9.0	
CONTROL LEVER		
control lever position degree tolerance degree		
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 11.00 : 945 : + 5	
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1019 : + 15	
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : +- 0.50 : 1200	
LOW IDLE		
control lever position degree tolerance degree	: 72.0 : +- 4.0	
Setting point w/out bumper spring		
Rated speed rpm	: 200	
CRT am min.	: > 7.18	
Testing:		
Rated speed rpm rack travel mm Tolerance mm	: 300 : 5.00 : +- 0.10	
TORQUE CONTROL	<del></del>	

Rated speed rpm rack travel mma Tolerance mm Rated speed rpm rack travel mm Tolerance mm	: 12.00 : +- 0.05 : 700	Del. quantity cm3/1000 strokes : 228.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0
Rated speed rpm rack travel mm Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST	: 10.70 : +- 0.10	Aneroid pressure  hPa : 1200  Rated speed rpm : 500  Del. quantity  cm3/1000 strokes : 220.0  Tolerance  cm3/1000 strokes : +- 3.0  Check tolerance  cm3/1000s. : +- 6.0
SETTING		
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 12.00	Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900 : - : 9.15 : + 0.10	- cm3/1000 strokes : 167.0 - Tolerance - cm3/1000 strokes : +- 1.0 - Check tolerance - cm3/1000s. : +- 4.0
MEASUREMENT		4.0
Rated speed rpm	: 900	+ STARTING FUEL DELIVERY
Pressure hPa rack travel mm Tolerance nam	: 10.55	Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 200.0
Pressure hPa rack travel mm Tolerance mm	: 9.45	+ Tolerance + cm3/1000 strokes : +- 15.0 + Check tolerance + cm3/1000s. : +- 19.0
Start interlock	<del></del>	<del></del> ‡
Rated speed rpm Rated speed rpm		LOW IDLE
Check speed 1/min	: > 80	Rated speed rpm : 300 Rack trayel in mm : 5.00
Check speed 1/min	: < 240	+ Tolerance mm : +- 0.10 + Del. quantity + cm3/1000 strokes : 23.0
FUEL DELIVERY CHA	ARACTERISTICS	Tolerance + cm3/1000 strokes : +- 3.0 + Check tolerance
Aneroid pressure hPa Rated speed rpm	: 1200 : 709	cm3/1000s. : +- 6.0  Spreed  Tolerance  cm3/1000 strokes : 8.0

Check tolerance cm3/1000s.	:	12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19.09.97 Test oil : ISO 4113

Combination No. : 9 400 085 240

Injection pump

Pump designation : PES4A90D320RS2702 EP type number : 9 400 083 095

Governor

Governer design. : RSV350...1150A2C2129

: -4R

: 9 420 083 268 Governer no.

Cust. part No. :

Customer-spec. information Customer : MWM : D 229-4 Motor 75.0 Power KW

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : + 2.0 Tolerance °C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

: 173.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.70
Tolerance mm : + 0.05 Check tolerance mm : **←** 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-3-4-2

: 0-90-180-270
Tolerance : + 0 = 0

Check

tolerance °NW : +- 0.75

Beginning of delivery differende

and maximum rack

travel : 10.50
Tolerance mm : +- 1.50
Difference ° CS : 3.50

# BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm: 9.05 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 64.0

Tolerance

cm3/1000 strokes : + 0.5

Check tolerance cm3/1000s. : +- 2.5	+ Check tolerance + cm3/1000s. : +- 2.5 + Spreed
Spreed	† Tolerance
Tolerance cm3/1000 strokes : 3.0	- cm3/1000 strokes : 3.0 - Check tolerance - cm3/1000s. : 7.0
Check tolerance cm3/1000s. : 7.0	CONTROL LEVER
	+
Rated speed rpm : 350	control lever position degree : 49.0 tolerance degree : +- 4.0
Rack travel in mm: 5.70 Tolerance mm: + 0.10	control lever
Del. quantity cm3/1000 strokes : 12.0 Tolerance	position degree : 99.0 tolerance degree : +- 4.0
cm3/1000 strokes : +- 2.0 Check tolerance	RATED SPEED : 8.00
cm3/1000s. : +- 4.0 Spreed Tolerance	Rated speed rpm : 1195 Tolerance 1/min : +- 5
cm3/1000 strokes : 4.5 Check tolerance	rack travel mm : 4.00 Rated speed rpm : 1245
cm3/1000s. : 7.0	Tolerance 1/min : + 15
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1400
GUIDE SLEEVE POSITION	LOW IDLE
control lever  position degree : - 3  Rated speed rpm : 809	control lever position degree : 74.0
Rack travel in mm: 0.65	tolerance degree : +- 4.0
Tolerance mm : + 0.35  governor spring pre-tension	control lever position degree : 24.0 tolerance degree : +- 4.0
click setting x : 4.75	Setting point w/out bumper spring
FULL LOAD DELIVERY AT FULL LOAD STOP	+ Rated speed rpm : 350 + rack travel mm : 5.20 + Tolerance mm : +- 0.10
Rated speed rpm : 1150 Aneroid pressure	Rated speed rpm : 100
hPa : - Del. quantity cm3/1000 strokes : 64.0	CRT mm min. : > 19.00
Tolerance cm3/1000 strokes : +- 0.5	Testing:
	Rated speed rpm : 350

rack travel mm	: 5.70
Tolerance mm	: + 0.10
rack travel mm	: 2.00
Rated speed rpm	: 590
Tolerance 1/min	: ← 30
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1150 : 9.05 : + 0.05
Rated speed rpm	: 500
rack travel mm	: 10.15
Tolerance mm	: + 0.05
Rated speed rpm	: 800
rack travel mm	: 9.80
Tolerance mm	: + 0.10
Rated speed rpm	: 1000
rack travel mm	: 9.25
Tolerance mm	: + 0.15

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure			
hPa	:		_
Rated speed rpm	:		500
Del. quantity			
cm3/1000 strokes	:		62.0
Tolerance			
cm3/1000 strokes	:	+	1.5
Check tolerance			
cm3/1000S.	:	+-	3.5

Aneroid pressure			
hPa	:		-
Rated speed rpm	:		800
Del. quantity			
cm3/1000 strokes	:		67.0
Tolerance			
cm3/1000 strokes	:	+-	1.5
Check tolerance			
cm3/1000S.	:	+-	3.5

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	20.00
Tolerance mm	: +	- 1.00

LOW IDLE	
Rated speed rpm	: 350
Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes	: +- 0.10
Tolerance cm3/1000 strokes Check tolerance	
cm3/1000S. Spreed Tolerance	: +- 4.0
cm3/1000 strokes Check tolerance	: 4.5
cm3/1000s.	: 7.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19.09.97 Test oil : ISO 4113

Combination No. : 9 400 085 241

Injection pump

Pump designation : PES3A90D32ORS2703 EP type number : 9 400 083 096

Governor

Governer design. : RSV350...1150A2C2129

: -4R

Governer no. : 9 420 083 268

Cust. part No. :

Customer—spec. information
Customer : MWM
Motor : D 229-3
Power KW : 42.7

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant. per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.70 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1- 2- 3

Phasing : 0-120-240 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Beginning of delivery differende

and maximum rack

travel : 10.50
Tolerance mm : + 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 8.55 Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 58.5

cms/1000 strokes . Jo. J

Tolerance

cm3/1000 strokes : + 0.5

Check tolerance + 2.5 + 2.5	Check tolerance cm3/1000s. : +- 2.5 Spreed
Spreed	Tolerance
Tolorone	cm3/1000 strokes : 3.0
Tolerance cm3/1000 strokes : 3.0	Check tolerance cm3/1000s. : 5.0
Check tolerance	
cm3/1000s. : 5.0	
	CONTROL LEVER
+	
Pated encod way 250	control lever
Rated speed rpm : 350	position degree : 97.0 tolerance degree : + 4.0
Rack travel in mm: 5.60	toterance degree 4.0
Tolerance mm : + 0.10	RATED SPEED
Del. quantity +	rack travel mm : 7.50
cm3/1000 strokes : 13.0 +	Rated speed rpm : 1195
Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : + 2.0 + Check tolerance +	rack travel mm : 4.00
cm3/1000s. : + 4.0	Rated speed rpm : 1235
Spreed	Tolerance 1/min : + 15
Tolerance	
cm3/1000 strokes : 2.5	rack travel mm : 0.85
Check tolerance + cm3/1000s. : 4.5	Tolerance mm : + 0.55
cm3/1000s. : 4.5	Rated speed rpm : 1400
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	101.7015
+	LOW IDLE
GUIDE SLEEVE POSITION	control lever
GUIDE SLEEVE POSITION	control lever position degree : 72.0
+	control lever
control lever position degree : -3	control lever position degree : 72.0
control lever	control lever position degree : 72.0 tolerance degree : +- 4.0 Setting point w/out bumper spring
control lever position degree : -3 Rated speed rpm : 800	control lever position degree : 72.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 350
control lever position degree : -3 Rated speed rpm : 800  Rack travel in mm : 0.65	control lever position degree : 72.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10
control lever position degree : -3 Rated speed rpm : 800	control lever position degree : 72.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 350
control lever position degree : -3 Rated speed rpm : 800  Rack travel in mm : 0.65	control lever position degree : 72.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10
control lever position degree : -3 Rated speed rpm : 800  Rack travel in mm : 0.65 Tolerance mm : + 0.35  governor spring	control lever position degree : 72.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : +- 0.10
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.65 Tolerance mm : + 0.35  governor spring pre-tension	control lever position degree : 72.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.00
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.65 Tolerance mm : + 0.35  governor spring pre-tension	control lever position degree : 72.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : + 0.10  Rated speed rpm : 100
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.65 Tolerance mm : + 0.35  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP	control lever position degree : 72.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.00  Testing:  Rated speed rpm : 350
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.65 Tolerance mm : + 0.35  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1150	control lever position degree : 72.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.00  Testing:  Rated speed rpm : 350 rack travel mm : 5.60
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.65 Tolerance mm : + 0.35  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1150 Aneroid pressure	control lever position degree : 72.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.00  Testing:  Rated speed rpm : 350
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.65 Tolerance mm : + 0.35  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1150 Aneroid pressure hPa : -	control lever position degree : 72.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. :> 19.00  Testing:  Rated speed rpm : 350 rack travel mm : 5.60 Tolerance mm : + 0.10
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.65 Tolerance mm : + 0.35  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1150 Aneroid pressure hPa : - Del. quantity	control lever position degree : 72.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. :> 19.00  Testing:  Rated speed rpm : 350 rack travel mm : 5.60 Tolerance mm : + 0.10  rack travel mm : 2.00
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.65 Tolerance mm : + 0.35  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1150 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 58.5 Tolerance	control lever position degree : 72.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. :> 19.00  Testing:  Rated speed rpm : 350 rack travel mm : 5.60 Tolerance mm : + 0.10  rack travel mm : 5.60 Tolerance mm : + 0.10
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.65 Tolerance mm : + 0.35  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1150 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 58.5	control lever position degree : 72.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. :> 19.00  Testing:  Rated speed rpm : 350 rack travel mm : 5.60 Tolerance mm : + 0.10  rack travel mm : 5.60 Tolerance mm : 2.00 Rated speed rpm : 380

TORQUE CONTROL
Rated speed rpm : 1150
rack travel mm : 8.55
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 9.45
Tolerance mm : + 0.05

Rated speed rpm : 800 rack travel mm : 9.00 Tolerance mm : 0.10

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 55.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000s. : - 3.5

Aneroid pressure
hPa : Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 61.5
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000s. : + 3.5

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 Tolerance mm : + 1.00

# LOW IDLE

Rated speed rpm : 350

Rack travel in mm: 5.60
Tolerance mm: + 0.10

Del. quantity		
cm3/1000 strokes	:	13.0
Tolerance		
cm3/1000 strokes	: +-	2.0
Check tolerance		
cm3/1000s.	: +-	4.0
Spreed		
Tolerance		
cm3/1000 strokes	:	2.5
Check tolerance		
cm3/1000s.	:	4.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 18.06.97 : ISO 4113

Combination No. : 0 400 864 107

Injection pump

Pump designation : PES4A95D410/3RS2913

EP type number : 0 410 894 986

Governor

Governer design. : RSV325...900A1c859L

Governer no. : 0 420 232 622

Cust. part No. : 0423 2225 KY

Customer-spec. information

Customer : KHD-DMI

Motor

: F4L912/Neu.compr

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar

173.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600 REMARKS (A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_\_ BEGINNING OF DELIVERY Test pressure bar : 26.0 Tolerance bar : +- 1.0 Prestroke mm : 3.00 Tolerance mm : + 0.05 Check tolerance mm : +- 0.10 Rack travel in mm : 10.50

Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-3-2

# BASIC SETTING

Phasing

Check

Tolerance

Rated speed rpm : 850

tolerance °NW

: 0-90-270 : +- 0.50

: +- 0.75

Rack travel in mm: 11.80 Tolerance mm: +- 0.05

Del. quantity

cm3/1000 strokes : 80.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: **←** 3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

	•
Check tolerance cm3/1000s. : 8.0	- CONTROL LEVER
Rated speed rpm : 325	control lever position degree : 96.0
rated speed rpm . 323	tolerance degree : +- 4.0
Rack travel in mm: 7.90 Tolerance mm: + 0.10 Del. quantity	RATED SPEED : 10.80 Rated speed rpm : 895
cm3/1000 strokes : 11.5	Tolerance 1/min : +- 5
cm3/1000 strokes : +- 2.0 Check tolerance	- rack travel mm : 4.00 - Rated speed rpm : 940
cm3/1000s. : + 4.5 Spreed	Tolerance 1/min : +- 10
Tolerance cm3/1000 strokes : 5.5	rack travel mm : 0.85 Tolerance mm : +— 0.55
Check tolerance cm3/1000s. : 9.0	Rated speed rpm : 1110
1	- rack travel mm : 4.00 - Rated speed rpm : 960
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	- LOW IDLE
control lever	control lever
position degree : FREE Rated speed rpm : 800	- position degree : 75.0 - tolerance degree : +- 4.0
Rack travel in mm: 0.50 + Tolerance mm: + 0.20 +	Setting point w/out bumper spring
governor spring	Rated speed rpm : 325 rack travel mm : 7.40
pre-tension - 4.25	Tolerance mm : +- 0.10
	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 19.50
Rated speed rpm : 850 Aneroid pressure	Testing:
hPa : - +	Rated speed rpm : 325
Del. quantity cm3/1000 strokes : 80.0	rack travel mm : 7.90 Tolerance mm : +- 0.10
Tolerance + 1.0 + 1.0	rack travel mm : 2.00
Check tolerance + 3.0 + 3.0	Rated speed rpm : 440 Tolerance 1/min : +- 30
Spreed Tolerance	
cm3/1000 strokes : 3.5 Check tolerance	TORQUE CONTROL Rated speed rpm : 850
cm3/1000s. : 8.0	rack travel mm : 11.80 Tolerance mm : +- 0.05

Rated speed rpm : 500

# STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + 0.75
Del. quantity
cm3/1000 strokes : 130.0
Tolerance
cm3/1000 strokes : + 7.5
Check tolerance
cm3/1000s. : + 10.0

# LOW IDLE

Rated speed rpm : 325 Rack travel in mm: 7.90 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 11.5 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : +- 4.5 Spreed Tolerance 5.5 cm3/1000 strokes : Check tolerance cm3/1000s.9.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 23.09.97 Test oil : ISO 4113

Combination No. : 0 402 076 773

Injection pump

Pump designation : PES6P100A320LS3342 EP type number : 0 412 006 710

Governor

Governer design. : RSV415...1100P8A595

Governer no. : 0 421 833 461

Cust. part No. : 1824625C91

Customer-spec. information Customer : NAVISTAR Motor : DT-530 Power KW : 168.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test cil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.00 Tolerance mm : +- 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

# BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.25 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 146.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

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Spreed	Tolerance
Tolerance	+ cm3/1000 strokes : 8.0 + Check tolerance
cm3/1000 strokes : 8.0	cm3/1000s. : 12.0
Check tolerance cm3/1000s. : 12.0	
	CONTROL LEVER
Rated speed rpm : 415	<pre>control lever position degree : 106.0 tolerance degree : +- 6.0</pre>
Rack travel in mm: 5.50	†
Tolerance mm : +- 0.10	+ RATED SPEED
Del. quantity	+ rack travel mm : 12.20
cm3/1000 strokes : 24.5	Rated speed rpm : 1150
Tolerance	Tolerance 1/min : + 5
cm3/1000 strokes : + 2.0 Check tolerance	theck
cm3/10003. : +- 4.5	+ speed 1/min : + 10
Spreed : +- 4.5	rack travel mm : 4.00
Tolerance	+ Rated speed rpm : 1200
cm3/1000 strokes : 4.0	+ Tolerance 1/min : +- 5
Check tolerance	Check
cm3/1000s. : 6.5	speed 1/min : +- 10
	+
	+ rack travel mm : 0.85
(B) SETTING OF INJECTION PUMP	+ Tolerance mm : +- 0.55
WITH GOVERNOR	+ Rated speed rpm : 1300
	+
	+ rack travel mm : 4.00
	+ Rated speed rpm : 1205
GUIDE SLEEVE POSITION	+ Tolerance 1/min : +- 5
	+ Check
control lever	speed 1/min : +- 10
position degree : - 3	Ť
Rated speed rpm : 800	Ī
Nated Speed Phill . 000	
Rack travel in mm: 0.50	+ LOW IDLE
Tolerance mm : + 0.20	+
governor spring	- control lever
pre-tension	position degree : 79.0
click setting x : 3.00	+ tolerance degree : + 6.0
,	+
	+ Setting point w/out bumper spring
FULL LOAD DELIVERY AT FULL LOAD STOP	<b>†</b>
Detail and all warms and 1400	+ Rated speed rpm : 100
Rated speed rpm : 1100	10.00
Aneroid pressure hPa : 1200	+ CRT mm min. : > 19.00
Del. quantity	Testing:
cm3/1000 strokes : 146.5	T resumy.
Tolerance	Rated speed rpm : 415
cm3/1000 strokes : +- 1.0	+ rack travel mm : 5.50
Check tolerance	+ Tolerance mm : +- 0.10
cm3/1000s. : +- 3.0	+
Spreed	+
·	+ TORQUE CONTROL

Rated speed rpm : 1100 rack travel mm : 13.25 Tolerance mm : + 0.05

Rated speed rpm : 800 rack travel mm : 14.20 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rom : 500 Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : rack travel mm : 8.90
Tolerance ma : + 0.20

**MEASUREMENT** 

Rated speed rpm : 500

Pressure hPa : 590 rack travel mm : 12.60 Tolerance mm : + 0.20

Pressure hPa : 270
rack travel mm : 10.20
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 800

Del. quantity

cm3/1000 strokes : 172.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.0

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 78.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : +--- 0.50

Del. quantity

cm3/1000 strokes : 160.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.0

Check tolerance

cm3/1000s. : +- 25.0

LOW IDLE

Rated speed rpm : 415

Rack travel in mm : 5.50
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 24.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. : 6.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19.09.97 Test oil : ISO 4113

Combination No. : 0 402 736 842AA

Injection pump

Pump designation : PES6P120A120RS7281

EP type number : 0 412 815 344

Governor

Governer design. :

Governer no. :

Cust. part No. : 3933296

Customer-spec. information

Customer : CDC

Motor Power KW : 119.0

: 6BTA-A

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

\*NW after s.o.d. : 6.25 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.35 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 153.5

	+	Rated speed rpm : 1690
Tolerance	+	guide sleeve
cm3/1000 strokes : +-	1.0	travel mm : 11.50 Tolerance mm : + 0.50
Check tolerance		Total arte mili
cm3/1000s. : +-	4.0	
Spread		FULL LOAD DELIVERY AT FULL LOAD STOP
Spreed	I	Rated speed rpm : 1250
Tolerance	+	Aneroid pressure
cm3/1000 strokes :	8.0	hPa : 800
Check tolerance		Del. quantity cm3/1000 strokes : 153.5
cm3/1000s. :	12.0 I	Tolerance
	+	cm3/1000 strokes : + 1.0
	+	Check tolerance
Rated speed rpm :	420	cm3/1000s. : +- 4.0
kated speed (pill .	Ţ	Spreed Tolerance
Rack travel in mm :	6.00	cm3/1000 strokes : 8.0
Tolerance mm : +-	0.20	Check tolerance
Del. quantity cm3/1000 strokes :	15.5	cm3/100GS. : 12.0
Tolerance	13.3	
cm3/1000 strokes : +-	3.0	
Check tolerance	+	CONTROL LEVER
cm3/1000s. : +-	5.0	control lever
Spreed Tolerance	I	position degree : 117.0
cm3/1000 strokes :	4.0	tolerance degree : +- 6.0
Check tolerance	+	-
c <b>m</b> 3/1000s. :	8.0	RATED SPEED
	Ī	rack travel mm : 12.30 Rated speed rpm : 1325
(B) SETTING OF INJECTION	N PUMP +	Tolerance 1/min : +- 15
WITH GOVERNOR	₫.	
	<b>.</b> †	rack travel mm : 4.00
GUIDE SLEEVE TRAVEL	Ī	Rated speed rpm : 1475 Tolerance 1/min : + 5
	+	
	329 +	rack travel mm : 0.50
guide steeve travel mm :	7.83	Tolerance mm : + 0.50 Rated speed rpm : 1550
	0.15	nated speed (pill . 1990
	+	
	400 +	
guide sleeve travel mm :	1.44	LOW IDLE
	0.20	EOW TOLL
	+	
	939	control lever
guide sleeve travel mm :	5.18	position degree : 71.0 tolerance degree : +- 6.0
		toterance degree O.b
	+	Control lever difference
	640 +	Grad : 46.0
guide sleeve travel mm :	3.56	tolerance degree : +- 6.0
Tolerance mm : +-	0.25	Setting point w/out bumper spring
	+	

Rated speed rpm	: 400	+ Rated speed rpm : > 100 + Rated speed rpm : < 280
CRT mm min.	: > 5.80	+
Testing:		+ Check + speed 1/min :> 80
Detect amount name	. /20	+ Check
lated speed rpm rack travel mm		+ speed 1/min : < 290
olerance mm	: ← 0.20	
		FUEL DELIVERY CHARACTERISTICS
ated speed rpm	: 425	
PARALIE CALIFON		- Aneroid pressure
ORQUE CONTROL ated speed rpm	: 1250	+ hPa : 800
		+ Rated speed rpm : 800 + Del. quantity
ack travel mm olerance mm	: + 0.05	+ cm3/1000 strokes : 133.0
rectative min	0.03	Tolerance
ated speed rpm	: 800	+ cm3/1000 strokes : +- 3.0
ack travel mm	: 12.00	+ Check tolerance
olerance mm	: <del>←</del> 0.20	+ cm3/1000s. : + 6.G
		Spreed
ated speed rpm		Tolerance
ack travel mm	: 11.60	+ cm3/1000 strokes : 8.0
olerance mm	: ← 0.20	+ Check tolerance
<b>4</b>		+ cm3/1000s. : 12.0
ated speed rpm	: 900	†
ck travel mm Lerance mm	12.40	
cerance mm	: - 0.20	+ Aneroid pressure + hPa : -
		Rated speed rpm : 1250
NEROID/ALTITUDE		+ Del. quantity
MPENSATOR TEST		+ cm3/1000 strokes : 84.0
		+ Tolerance
		+ cm3/1000 strokes : +- 2.0
TTING		+ Check tolerance
	4070	+ cm3/1000s. : ⊢ 4.0
ated speed rpm		†
ressure hPa	: 1200	ļ
ated speed rpm		STARTING FUEL DELIVERY
ressure hPa	- 0.45	†
ack travel mm	: 9.15	+ Rated speed rpm : 100
olerance mm	: <b>←</b> 0.20	+ rack travel mm : 13.50 + Tolerance mm : +- 0.50
1EASUREMENT		+ Tolerance mm : +- 0.50 + Del. quantity
ILASUNLITEN I		+ cm3/1000 strokes : 155.0
ated speed rpm	: 1250	Tolerance
	- r species var	+ cm3/1000 strokes : + 20.0
ressure hPa	: 310	+ Check tolerance
rack travel mm	: 12.30	+ cm3/1000s. : +- 25.0
Tolerance mm	: <b>+</b> 0.30	†
Pressure hPa	: 175	<u> </u>
rack travel mm	: 10.20	
olerance mm	: + 0.20	+ LOW IDLE
		+
		Rated speed rpm : 420
tart interlock		t Pack travel in mm · 600

Tolerance mm	: +-	0.20
CHAP, TOOL DETORCE	:	15.5
Tolerance cm3/1000 strokes	: +-	3.0
Check tolerance cm3/1000s.	: +-	5.0
Spreed Tolerance		
cm3/1000 strokes	:	4.0
Check tolerance cm3/1000s.	:	8.0

# Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 19.09.97 : ISO 4113

Combination No. : 0 402 736 866AA

Injection pump

Pump designation : PES6P120A120RS7349

EP type number : 0 412 726 920

Governor

Governer design. : Governer no. :

Cust. part No. : 3933299

Customer-spec. information Customer : CDC Motor : 6BTA-A Power KW : 156.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

40 temp. °C Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

: 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : +- 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 12.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-: 4

. 0-60-120-180-240 Phasing

Start of delivery blocking

"NW after s.o.d. : 6.00 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.95 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 177.0	guide sleeve travel mm : 9.40
Tolerance cm3/1000 strokes : +- 1.0	GUIDE SLEEVE POSITION
Check tolerance cm3/1000s. : +- 4.0	control lever position degree : - 1
Spreed	†
Tolerance cm3/1000 strokes : 8.0	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1250
Check tolerance cm3/1000s. : 12.0	Aneroid pressure hPa : 800
	+ Del. quantity + cm3/1000 strokes : 177.0 + Tolerance
Rated speed rpm : 420	cm3/1000 strokes : +- 1.0 Check tolerance
Rack travel in mm : 5.60 Tolerance mm : + 0.20	- cm3/1000s. : +- 4.0 - Spreed
Del. quantity cm3/1000 strokes : 18.0 Tolerance	+ Tolerance + cm3/1000 strokes : 8.0 + Check tolerance
cm3/1000 strokes : + 3.0 Check tolerance	cm3/1000s. : 12.0
cm3/1000s. : + 5.0 Spreed Tolerance	CONTROL LEVER
cm3/1000 strokes : 4.0 Check tolerance	control lever
cm3/1000s. : 8.0	position degree : 120.0 tolerance degree : +- 6.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	RATED SPEED  rack travel mm : 12.90  Rated speed rpm : 1320
GUIDE SLEEVE TRAVEL	- + Tolerance 1/min : +- 15 + Check + speed 1/min : +- 20
Rated speed rpm : 1250 guide sleeve	rack travel mm : 4.00
travel mm : 7.10	Rated speed rpm : 1475 Tolerance 1/min : +- 5
Rated speed rpm : 400 guide sleeve travel mm : 1.50	+ Check + speed 1/min : +- 10
travel mm : 1.50  Rated speed rpm : 800	rack travel mm : 0.50 Tolerance mm : +- 0.50
guide sleeve travel mm : 4.50	Rated speed rpm : 1550
Rated speed rpm : 550	<del> </del>
guide sleeve travel mm : 3.30	LOW IDLE
Rated speed rpm : 1500	† †

control lever position degree tolerance degree		Pressure hPa rack travel mm Tolerance mm	: 10.30
Control lever di Grad tolerance degree	: 48.0	Start interlock	•> 100
Setting point w/o		Rated speed rpm Rated speed rpm	: < 330
Rated speed rpm	: 300	+ Check + speed 1/min + Check	: > 80
CRT mm min.	: > 8.90	speed 1/min	: < 340
Testing:		FUEL DELIVERY CHA	RACTERISTICS
Rated speed rpm rack travel mm Tolerance mm	: 420 : 5.60 : +- 0.20	Aneroid pressure	
Rated speed rpm		hF'a Rated speed rpm Del. quantity	
TORQUE CONTROL Rated speed rpm rack travel mm	: 1250	- cm3/1000 strokes - Tolerance - cm3/1000 strokes	: +- 3.0
rack travel mm Tolerance mm	: + 0.05	Check tolerance cm3/1000s. Spreed	: + 6.0
Rated speed rpm rack travel mm Tolerance mm	: 12.00	Tolerance cm3/1000 strokes Check tolerance	
Rated speed rpm rack travel mm Tolerance mm	: 10.90	- cm3/1000s.	: -
ANEROID/ALTITUDE COMPENSATOR TEST		Rated speed rpm Del. quantity cm3/1000 strokes	
SETTING		Tolerance cm3/1000 strokes Check tolerance	
Rated speed rpm Pressure hPa		+ cm3/1000s.	: +- 4.0
Rated speed rpm Pressure hPa	: -	STARTING FUEL DEL	IVERY
rack travel mm Tolerance mm	: 9.00 : +- 0.20	Rated speed rpm rack travel mm Tolerance mm	: 100 : 12.50 : + 0.50
MEASUREMENT		Del. quantity cm3/1000 strokes	
Rated speed rpm		Tolerance cm3/1000 strokes	
Pressure hPa rack travel mm Tolerance mm		+ Check tolerance + cm3/1000s. +	: +- 25.0

# LOW IDLE

Rated speed rpm	:	420	
Rack travel in mm Tolerance mm	: +-	5.60 0.20	
Del. quantity cm3/1000 strokes Tolerance	:	18.0	
cm3/1000 strokes Check tolerance	: +-	3.0	
cm3/1000s. Spreed	: +-	5.0	
Tolerance cm3/1000 strokes	:	4.0	
Check tolerance cm3/1000s.	:	8.0	

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.09.97 : ISO 4113 Test oil

Combination No. : 0 400 075 918

Injection pump

Pump designation : PES5M55C32ORS191 EP type number : 0 410 055 951

Governor

Governer design. : RSF385/2000M88 Governer no. : 0 420 021 293

Cust. part No. :

Customer-spec. information

Customer : DPICO

: OM662-D29LA Motor Power KW

: 88.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde

: 1 688 901 111 assembly

Opening pressure

: 148.5 bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 1.75 Tolerance mm : +- 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 21.00 Tolerance mm :  $\leftarrow$  1.00

Firing order : 1-2-4-5-3

: 0-72-144-216-288 Phasing

Start of delivery blocking

\*NW after s.o.d. : 16.50 Tolerance : +- 0.20 Check

tolerance °NW : +- 0.30

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.75 Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 53.1

Tolerance

cm3/1000 strokes : +- 0.5

Check tolerance cm3/1000s. : +- 1.5

Spreed

Tolerance

cm3/1000 strokes : 2.5

Check tolerance cm3/1000s.3.0 SET IDLE CONTROL LEVER POSITION Rated speed rpm : 385 Rack travel in mm : 5.80 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 8.5 Tolerance cm3/1000 strokes : + 0.5 Spreed Tolerance cm3/1000 strokes : 1.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR IDLE STAGE Rack travel in mm : 5.50 Tolerance mm :  $\leftarrow$  0.10 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm 1000 Ref. pressure ALDA / ADA hPa : 1600 Del. quantity cm3/1000 strokes : 53.1 Tolerance cm3/1000 strokes :  $\leftarrow$  0.5 Check tolerance cm3/1000s. : +- 1.5 Spreed Tolerance cm3/1000 strokes : 2.5 Check tolerance cm3/1000s. 3.0 RATED SPEED control lever 50.0 position degree : 2250 Rated speed rpm : rack travel mm 8.75 Tolerance mm : **←** 0.20 2600 Rated speed rpm rack travel mm 0.50 Tolerance mm : +- 0.60

Rated speed rpm : 1000 CRT mm max. : 1.85 LOW IDLE control lever position degree : 11.0 Setting point w/out bumper spring Rated speed rpm : 385 rack travel mm 5.80 SET IDLE AUXILIARY SPRING Rated speed rpm 500 rack travel mm 3.90 : +- 0.10 Tolerance mm Load pick-up Rated speed rpm 200 rack travel mm 12.50 Rated speed rpm : 1000 CRT mm max. : 1.85 rack travel mm 5.80 : Rated speed rpm : TORQUE CONTROL Rated speed rpm 1000 rack travel mm : 13.75 : +- 0.05 Tolerance mm Rated speed rpm 1700 13.45 rack travel mm : : +- 0.10 Tolerance mm Rated speed rpm 2000 12.95 rack travel mm Tolerance mm : +- 0.10Rated speed rpm : 1000 rack travel mm : 11.80 : +- 0.10 Tolerance mm ADJUSTMENT TEST ADA/ALDA

SETTING	+ Del. quantity
	+ cm3/1000 strokes : 43.2
Rated speed rpm : 1000	+ Tolerance
Ref. pressure ALDA / ADA hPa : 1400	+ cm3/1000 strokes : + 0.5 + Check tolerance
rack travel mm : 0.30	+ cm3/1000s. ; +- 1.5
Tolerance mm : + 0.20	Spreed
	Tolerance
MEASUREMENT	+ cm3/1000 strokes : 2.5
Rated speed rpm : 1000	+ Check tolerance + cm3/1000s. : 3.0
Ref. pressure	+
ALDA / ADA hPa : 1100	Ref. pressure
rack travel mm : 1.95	ALDA / ADA hPa : 1100
Tolerance mm : + 0.10	+ Rated speed rpm : 1960 + Del. quantity
Ref. pressure	cm3/1000 strokes : 43.2
ALDA / ADA hPa : 750	Tolerance
rack travel mm : 3.80	+ cm3/1000 strokes : +- 0.5
Tolerance mm : ← 0.20	+ Check tolerance
	+ cm3/1000s. : +- 1.5 + Spreed
	Tolerance
FUEL DELIVERY CHARACTERISTICS	- cm3/1000 strokes : 2.5
	+ Check tolerance
Ref. pressure ALDA / ADA hPa : 1600	- cm3/1000s. : 3.0
Rated speed rpm : 1700	Ī
Del. quantity	
cm3/1000 strokes : 53.8	+ HIGH IDLE
Tolerance	+
<pre>cm3/1000 strokes : +- 0.8 Check tolerance</pre>	+ Ref. pressure + ALDA / ADA hPa : 1600
cm3/1000s. : +- 1.8	Rated speed rpm : 2250
Spreed	rack travel mm : 8.75
Tolerance	Tolerance mm : +- 0.20
cm3/1600 strokes : 2.5	+ Del. quantity
Check tolerance cm3/1000s. : 3.0	+ cm3/1000 strokes : 32.9 + Tolerance
. 3.0	+ cm3/1000 strokes : +- 2.0
Ref. pressure	- Check tolerance
ALDA / ADA hPa : 1600	+ cm3/1000s. : +- 3.0
Rated speed rpm : 2000 Spreed	+ Spreed + Tolerance
Del. quantity	- cm3/1000 strokes : 2.5
cm3/1000 strokes : 52.1	+ Check tolerance
Tolerance	+ cm3/1000s. : 3.0
cm3/1000 strokes : + 1.0 Check tolerance	†
cm3/1000s. : +- 2.0	STARTING FUEL DELIVERY
Spreed	
Tolerance	Rated speed rpm : 100
cm3/1000 strokes : 2.5	rack travel mm : 21.50
Check tolerance cm3/1000s. : 3.0	+ Tolerance mm : +- 1.50 + Del. quantity
VIID/ 10000 5:0	cm3/1000 strokes : 58.3
Ref. pressure	† Tolerance
ALDA / ADA hPa : 1100	- cm3/1000 strokes : +- 4.0
Rated speed rpm : 1000	- Check tolerance
	+ cm3/1000s. : +- 5.0

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 6.0

LOW IDLE

Rated speed rpm : 385

Del. quantity

cm3/1000 strokes : 9.5

Check tolerance

cm3/1000s. : +- 2.3

Spreed

Check tolerance

cm3/1000s. : 1.5

control lever

position degree : > 45.00

control lever

position degree : < 42.50

SETTING PNEUMATIC FAST IDLE (PLA)

(PLA) POSITION

control lever

position degree : 11.0

Rated speed rpm : 400

Rack travel in mm : 8.85 Tolerance mm : + 0.80

Del. quantity

cm3/1000 strokes : 25.3

Tolerance

cm3/1000 strokes :  $\leftarrow$  4.0

Check tolerance

cm3/1000s. : + 5.0

Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 385

Vacuum hPa : -450.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 19.09.97 : ISO 4113

Combination No. : 0 402 074 700

Injection pump

Pump designation : PES4P110B720RS3383 EP type number : 0 412 014 701

Governor

Governor design. : RSV300...1100P1A667

Governer no. : 0 421 833 582

Cust. part No. : 9880216

Customer-spec. information

Customer : LIEBHERR

Motor

: D 924 TI-E A2

Power KW

: 149.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

40

Tolerance °C

Overflow valve : 1 417 413 049

Inlet press. bar :

Tolerance bar

1.5

: + 0.1

Tolerance L/h:  $\leftarrow$  10.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 207.0

Tolerance bar

: + 1.5

Test lines

: 1 680 750 008

Outside diameter : 6.0

x inside diameter :

2.0

x length mm :

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm 3.20 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 4-2-1-3

: 0-90-180-270 Phasing

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : + - 0.10

Check

tolerance °NW : + - 0.75

Barrel no.

BASIC SETTING

Rated speed rpm :

890

Rack travel in mm : 13.85

Tolerance mm : +- 0.05

J19

Del. quantity cm3/1000 strokes : 203.0	- Aneroid pressure - hPa : 1410 - Del. quantity
Tolerance cm3/1000 strokes : +- 1.0	- cm3/1000 strokes : 203.0 - Tolerance
Check tolerance cm3/1000s. : +- 3.5	- cm3/1000 strokes : +- 1.0 - Check tolerance - cm3/1000s. : +- 3.5
Spreed	- Spreed - Tolerance - cm3/1000 strokes : 4.0
Tolerance cm3/1000 strokes : 4.0	- Check tolerance - cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	
	- CONTROL LEVER -
Rated speed rpm : 500	- control lever - position degree : 100.0 - tolerance degree : +- 4.0
Rack travel in mm: 4.20 + Tolerance mm: + 0.10 + Del. quantity	- RATED SPEED - rack travel mm : 12.85
<pre>cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : +- 3.0</pre>	Rated speed rpm : 910 - Tolerance 1/min : +- 5
Check tolerance cm3/1000s. : + 5.5	rack travel mm : 4.00 Rated speed rpm : 990
Spreed Tolerance cm3/1000 strokes : 4.5	- Tolerance 1/min : +- 15 - - rack travel mm : 0.85
Check tolerance cm3/1000s. : 7.5	- Tolerance mm : +- 0.55 - Rated speed rpm : 1200
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 995 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	- LOW IDLE
control lever position degree : -3 Rated speed rpm : 800	control lever position degree : 80.0 tolerance degree : +- 4.0
Rack travel in mm : 0.50 + Tolerance mm : + 0.20 +	Setting point w/out bumper spring
governor spring pre-tension click setting x : 4.00	Rated speed rpm : 500 rack travel mm : 2.40 Tolerance mm : + 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Testing:
Rated speed rpm : 890	Rated speed rpm : 500 rack travel mm : 4.20 Tolerance mm : +- 0.10

TORQUE CONTROL		+ Aneroid pressure + hPa : 1410 + Rated speed rpm : 700
Rated speed rpm rack travel mm	: 13.85	Del. quantity cm3/1000 strokes : 216.0
Tolerance mm		+ Tolerance + cm3/1000 strokes : +- 3.0
Rated speed rpm rack travel mm Tolerance mm	: 13.85	- Check tolerance - cm3/1000s. : +- 6.0
Rated speed rpm rack travel mm Tolerance mm	: 13.85	Aneroid pressure  hPa : - Rated speed rpm : 550  Del. quantity
ANEROID/ALTITUDE		
COMPENSATOR TEST		+ cm3/1000 strokes : +- 1.0 + Check tolerance + cm3/1000s. : 3.5
SETTING		+ CIII37 10003
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1410 : 13.85	STARTING FUEL DELIVERY Rated speed rpm : 100
Rated speed rpm		rack travel mm : 20.50 Tolerance mm : +- 0.50
Pressure hPa	: -	Del. quantity
rack travet mm Tolerance mm		+ cm3/1000 strokes : 155.0 + Tolerance
MEASUREMENT		+ cm3/1000 strokes : +- 15.0 + Check tolerance
Rated speed rpm	: 550	+ cm3/1000s. : +- 19.0 +
Pressure hPa rack travel mm Tolerance mm	: 870 : 13.00 : + 0.05	LOW IDLE
Pressure hPa	: 775	+ Rated speed rpm : 500
rack travel mm Tolerance mm	: 12.00 : +- 0.10	+ Rack travel in mm : 4.20 + Tolerance mm : +- 0.10 + Del. quantity
FUEL DELIVERY CHA	APACTEDISTICS	cm3/1000 strokes : 24.0
TOLL VELIVERY CHA		cm3/1000 strokes : +- 3.0 Check tolerance
Aneroid pressure hPa Rated speed rpm	: 1410 : 500	- cm3/1000s. : +- 5.5 - Spreed - Tolerance
Del. quantity cm3/1000 strokes		cm3/1000 strokes : 4.5 Check tolerance
Tolerance cm3/1000 strokes		- cm3/1000s. : 7.5
Check tolerance cm3/1000s.	: + 6.0	<u>†</u>

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 19.09.97 : ISO 4113

Combination No. : 0 402 074 700A

Injection pump

Pump designation : PES4P110B720RS3383

EP type number : 0 412 014 701

Governor

Governer design. : RSV300...1100P1A667

Governer no.

: 0 421 833 582

Cust. part No. : 9880216

Customer-spec. information Customer : LIEBHERR

Motor

: D 924 TI-E A2

Power KW

: 149.0

# TEST BENCH REQUIREMENTS

Inlet line

: 4.1

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve

: 1 417 413 049

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Tolerance l/h: + 10.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

207.0

bar Tolerance bar

: + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter:

x length mm :

2.0 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm 3.20

Tolerance mm : +- 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm: 10.50

: +- 1.50 Tolerance mm

Firing order : 4-2-1-3

: 0-90-180-270 Phasina

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm :

890

Rack travel in mm: 13.85

Tolerance mm : + 0.05

J23

Del. quantity	+ Tolerance
cm3/1000 strokes : 203.0	+ cm3/1000 strokes : + 1.0
	+ Check tolerance
Tolerance	+ cm3/1000s. : +- 3.5
cm3/1000 strokes : + 1.0	Spreed
	Tolerance
Check tolerance	- cm3/1000 strokes : 4.0
cm3/1000s. : + 3.5	Check tolerance
	+ cm3/1000s. : 7.5
Spreed	. ,,,
	1
Tolerance	
cm3/1000 strokes : 4.0	CONTROL LEVER
Check tolerance	+ control lever
cm3/1000s. : 7.5	position degree : 100.0
	+ tolerance degree : +- 4.0
	1
	RATED SPEED
Rated speed rpm : 500	rack travel mm : 12.85
The state of the s	Rated speed rpm : 910
Rack travel in mm: 4.20	+ Tolerance 1/min : +- 5
Tolerance mm : + 0.10	
Del. quantity	rack travel mm : 4.00
cm3/1000 strokes : 24.0	Rated speed rpm : 990
Tolerance	+ Tolerance 1/min : +- 15
cm3/1000 strokes : +- 3.0	1 Total and the state of the st
Check tolerance	rack travel mm : 0.85
cm3/1000s. : + 5.5	+ Tolerance mm : +- 0.55
Spreed	Rated speed rpm : 1200
Tolerance	T Mateu Speed (pill . 1200
cm3/1000 strokes : 4.5	rack travel mm : 4.00
Check tolerance	+ Rated speed rpm : 995
cm3/1000s. : 7.5	+ Tolerance 1/min : +- 15
CMS/10003 /	T loceratice trillity . +- (5)
	I
(B) SETTING OF INJECTION PUMP	$\mathbf{I}$
WITH GOVERNOR	
WITH GOVERNOR	LOW IDLE
	TOW IDEE
	$\mathbf{I}$
GUIDE SLEEVE POSITION	T control lever
AGINE OFFERE ! AGIIION	position degree : 80.0
	tolerance degree : + 4.0
control lever	L coterance degree 4.0
position degree : -3	T Setting point w/out bumper spring
posterous degree 3	T serring bottir wyont pumber sharing
dovoppoh papana	Pated speed non : 500
governor spring	Rated speed rpm : 500
pre-tension	rack travel mm : 2.40
click setting x : 4.00	Tolerance mm : +- 0.10
	Tooting
FULL LOAD DELTUEN AT FULL LOAD CTOP	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	T Data di anno di anno 500
000	Rated speed rpm : 500
Rated speed rpm : 890	rack travel mm : 4.20
Aneroid pressure	Tolerance mm : +- 0.10
hPa : 1410	†
Del. quantity	
cm3/1000 strokes : 203.0	TORQUE CONTROL
	+ Rated speed rpm : 890

rack travel mm Tolerance mm	: 13.85 : +- 0.05	+ Del. quantity + cm3/1000 strokes : 216.0 + Tolerance
Rated speed rpm rack travel mm	: 13.85	cm3/1000 strokes : +- 3.0 Check tolerance
Tolerance mm		+ cm3/1000s. : +- 6.0
Rated speed rpm rack travel mm Tolerance mm	: 700 : 13.85 : ← 0.10	Aneroid pressure  hPa : -  Rated speed rpm : 500  Del. quantity
ANEROID/ALTITUDE COMPENSATOR TEST		- cm3/1000 strokes : 177.0 - Tolerance - cm3/1000 strokes : +- 1.0
SETTING		+ Check tolerance + cm3/1000S. : +- 3.5
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1410 : 13.85	STARTING FUEL DELIVERY
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : -	Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : - 0.50 Del. quantity cm3/1000 strokes : 155.0
MEASUREMENT		Tolerance cm3/1000 strokes : +- 15.0
Rated speed rpm	: 500	+ Check tolerance + cm3/10608. : +- 19.0
Pressure hPa rack travel mm Tolerance mm		
Pressure hPa	: 775	LOW IDLE
rack travel mm Tolerance mm	: 12.00 : +- 0.10	Rated speed rpm : 500
		Rack travel in mm: 4.20 Tolerance mm: + 0.10 Del. quantity
FUEL DELIVERY CHA	ARACTERISTICS	cm3/1000 strokes : 24.0 Tolerance
Aneroid pressure	: 1410	+ cm3/1000 strokes : +- 3.0 + Check tolerance + cm3/1000S. : +- 5.5
Rated speed rpm Del. quantity cm3/1000 strokes		+ Spreed + Tolerance + cm3/1000 strokes : 4.5
Tolerance cm3/1000 strokes		Check tolerance cm3/1000s. : 7.5
Check tolerance cm3/1000s.		
Aneroid pressure hPa Rated speed rpm	: 1410	End of test specification sheet

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 19.09.97 : ISO 4113

Combination No. : 0 402 646 742

Injection pump

Pump designation : PE6P120A320LS7837-2

EP type number : 0 412 626 943

Governor

Governer design. : RQ300/1100PA1272

Governer no. : 0 421 801 804

Cust. part No. : 0270743002

Customer-spec. information

Customer : MB-NFZ

Motor

: 0M441 LA

Power KW

: 228.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Overflow quantity

min. l/h : 120 Tolerance l/h : + 20.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

J26

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm : 5.25 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50

: +- 0.50 Tolerance mm

Firing order : 6-3-5-2-4-

: 1

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance  $^{\circ}NW$  : + 0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance °NW : +- 0.75

Barrel no.

: 6

CRT ZERO POSITION

Rack travel in mm : 12.50

Tolerance mm : +- 0.10	+ guide sleeve
Totel artee han	travel mm : 2.24
	+ Tolerance mm : +- 0.20
BASIC SETTING	4
	Rated speed rpm : 1100
Rated speed rpm : 600	+ guide sleeve
	_ + travel mm : 6.00
	+ Tolerance mm : +- 0.10
Rack travel in mm: 12.50	<b>†</b>
Tolerance mm : + 0.10	+ Rated speed rpm : 429
No. 1	guide sleeve
Del. quantity	+ travel mm : 4.97
cm3/1000 strokes : 191.0	Tolerance mm : +- 0.10
Tolerance	Rated speed rpm : 550
cm3/1000 strokes : +- 1.0	+ Rated speed rpm : 550 + guide sleeve
CIIDY 1000 SETORES : +- 1.0	travel mn : 6.00
Check tolerance	Tolerance mm : +- 0.10
cm3/1000s. : +- 4.0	- 1000 and and and and and and and and and and
4.0	Rated speed rpm : 1340
Spreed	guide steeve
	+ travel mm : 11.50
Tolerance	+ Tolerance mm : + 0.50
cm3/1000 strokes : 6.0	+
Check tolerance	GUIDE SLEEVE POSITION
cm3/1000s. : 9.0	†
	- †
	+ control lever
Date di succidi su	position degree : 109
Rated speed rpm : 300	+ Rated speed rpm : 650
Rack travel in mm : 5.60	Dook troval in my 20 00
Tolerance mm : + 0.10	+ Rack travel in mm : 20.00 + Tolerance mm : +- 0.80
Del. quantity	Totalice iiiii . To 0.00
cm3/1000 strokes : 16.0	
Tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : + 3.0	-
Check tolerance	Rated speed rpm : 600
cm3/1000s. : +- 6.0	+ Aneroid pressure
Spreed	+ hPa : 600
Tolerance	+ Del. quantity
cm3/1000 strokes : 6.0	+ cm3/1000 strokes : 191.0
Check tolerance	+ Tolerance
cm3/1000s. : 10.0	+ cm3/1000 strokes : +- 1.0
	+ Check tolerance
(D) CETTING OF THIS COTTON COME	+ cm3/1000s. : +- 4.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ Spreed
WITH GOVERNOR	+ Tolerance + cm3/1000 strokes : 6.0
	Check tolerance
GUIDE SLEEVE TRAVEL	- cm3/1000s. : 9.0
	1
Rated speed rpm : 1146	1
guide sleeve	
travel mm : 6.54	+ CONTROL LEVER
Tolerance mm : + 0.15	+
	+ control lever
Rated speed rpm : 300	position degree : 94.0
	+ tolerance degree : +- 4.0

		1	
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min Check	: +- 5	ANEROID/ALTITUDE COMPENSATOR TEST	
speed 1/min	: +- 13	2 100	•
rack travel mm Rated speed rpm Tolerance 1/min Check		+ 2-stage LDA setti + Rated speed rpm + Pressure hPa	: 400 : 600
speed 1/min	: <del></del> 20	T MEASUREMENT	
rack travel mm Tolerance mm Rated speed rpm	: 0.75 : ← 0.75 : 1350	Pressure hPa rack travel mm Tolerance mm	: 350 : -1.20 : +- 0.15
		Pressure hPa rack travel mm Tolerance mm	: 200 : -2.20 : +- 0.20
LOW IDLE		+ Pressure hPa + rack travel mm	: 975 : 0.50
control lever position degree tolerance degree		Tolerance mm	: +- 0.05
Setting point w/d		Start interlock	
Rated speed rpm	: 200	Rated speed rpm Rated speed rpm	
CRT mm min.	: > 9.00	Check speed 1/min	: > 80
Testing:		Check speed 1/min	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 5.60 : +- 0.10	FUEL DELIVERY CHA	
rack travel mm Rated speed rpm Tolerance 1/min		Aneroid pressure hPa Rated speed rpm	: 1500 : 1100
TORQUE CONTROL Rated speed rpm	: 600	+ Del. quantity + cm3/1000 strokes + Tolerance	: 214.0
rack travel mm Tolerance mm	: 12.50 : + 0.10	cm3/1000 strokes Check tolerance	
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 13.70 : + 0.10	+ cm3/1000s. + Spreed + Tolerance + cm3/1000 strokes	: +- 4.5 : 8.0
Rated speed rpm		+ Check tolerance + cm3/1000s.	: 12.0
rack travel mm Tolerance mm		ļ	
		+ Aneroid pressure + hPa + Rated speed rpm	: 1500 : 700

Del. quantity cm3/1000 strokes : 216.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 6.0 Aneroid pressure hPa 500 Rated speed rpm Del. quantity cm3/1000 strokes : 140.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000S.4.0 STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 205.0 Tolerance cm3/1000 strokes : - 15.0 Check tolerance cm3/1000s.: + 19.0LOW IDLE Rated speed rpm : 300 Rack travel in mm: 5.60 : +- 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 16.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s.6.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s.10.0 End of test specification sheet

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19.09.97 : ISO 4113 Test oil

Combination No. : 0 402 646 743

Injection pump

Pump designation : PE6P120A320LS7837-2

EP type number : 0 412 626 943

Governor

Governer design. : RQ300/1100PA1271 Governer no. : 0 421 801 803

Cust. part No. : 0270743102

Customer-spec. information Customer : MB-NFZ : OM441 LA Motor : 260.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 : +- 0.1 Tolerance bar

Overflow quantity min. l/h : 120 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

208.5 Tolerance bar :  $\leftarrow$  1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 5.25 Tolerance mm : +- 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 20.50 Tolerance mm : +- 0.50

Firing order : 6-3-5-2-4-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

: +- 0.75 tolerance °NW

Start of delivery mark

Tolerance : + 0.10

Check

tolerance °NW : + 0.75

Barrel no. : 6

CRT ZERO POSITION

Rack travel in mm : 14.50

Tolerance mm	: +- 0.10	travel mm : 2.13
BASIC SETTING		Tolerance mm : + 0.20
Rated speed rpm	: 600	Rated speed rpm : 1100 guide sleeve travel mm : 6.00
Rack travel in mm		Tolerance mm : + 0.10  Rated speed rpm : 425
Del. quantity cm3/1000 strokes		guide sleeve travel mm : 4.89 Tolerance mm : +- 0.10
		+
Tolerance cm3/1000 strokes	: +- 1.0	+ Rated speed rpm : 550 + guide sleeve + travel mm : 6.00
Check tolerance cm3/1000s.	: +- 4.0	Tolerance mm : +- 0.10
Spreed		Rated speed rpm : 1340 guide sleeve
Tolerance cm3/1000 strokes	: 6.0	travel mm : 11.50 Tolerance mm : +- 0.50
Check tolerance cm3/1000s.	: 9.0	+ GUIDE SLEEVE POSITION
Rated speed rpm	: 300	control lever position degree : 109 Rated speed rpm : 650
Rack travel in nam Tolerance mam Del. quantity	: +- 0.10	+ Rack travel in mm : 20.00 + Tolerance mm : + 0.80 +
cm3/1000 strokes Tolerance cm3/1000 strokes		FULL LOAD DELIVERY AT FULL LOAD STOP
Check tolerance cm3/1000S. Spreed	: <b>←</b> 6.0	Rated speed rpm : 600 Aneroid pressure hPa : 850
Tolerance cm3/1000 strokes	: 6.0	+ Del. quantity + cm3/1000 strokes : 233.0
Check tolerance cm3/1000s.	: 10.0	+ Tolerance + cm3/1000 strokes : +- 1.0 + Check tolerance
(B) SETTING OF IN	JECTION PUMP	+ cm3/1000s. : +- 4.0 + Spreed
WITH GOVERNOR		+ Tolerance + cm3/1000 strokes : 6.0 + Check tolerance
GUIDE SLEEVE TRAV	EL	cm3/1000s. : 9.0
Rated speed rpm guide sleeve travel mm	: 1146 : 6.50	CONTROL LEVER
Tolerance mm	: + 0.15	control lever
Rated speed rpm	: 300	position degree : 100.0 tolerance degree : +- 4.0

			1	
! ! -	RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min Check speed 1/min		+++++++++++++++++++++++++++++++++++++++	ANEROID/ALTITUDE COMPENSATOR TEST
; ;	rack travel mm Rated speed rpm Tolerance 1/min Check	: +- 15	† † † †	2-stage LDA setti Rated speed rpm Pressure hPa
!	speed 1/min rack travel mm Tolerance mm Rated speed rpm	: +− 20 : 0.75 : +− 0.75 : 1350	† † † †	MEASUREMENT  Pressure hPa rack travel mm Tolerance mm  Pressure hPa
	LOW IDLE control lever	• 7/. O	<del> </del> + + + + + + + + + + + + + + + + + + +	rack travel mm Tolerance mm  Pressure hPa rack travel mm Tolerance mm
1	tolerance degree Setting point w/o Rated speed rpm	: + 4.0 ut bumper spring	+++++++++++++++++++++++++++++++++++++++	Start interlock Rated speed rpm Rated speed rpm
•	Testing:	: > 9.00	† † † †	Check speed 1/min Check speed 1/min
1	Rated speed rpm rack travel mm rack travel mm	: ← 0.10 : 2.00	† † †	FUEL DELIVERY CHA
-	Rated speed rpm Tolerance 1/min  FORQUE CONTROL		<del> </del>	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes
-	Rated speed rpm rack travel mm Folerance mm	: 600 : 14.50 : + 0.05 : 1100	+++++++++++++++++++++++++++++++++++++++	Tolerance cm3/1000 strokes Check tolerance cm3/1000s.
i T		: 15.60 : + 0.10 : 700	† † † †	Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000S.
	rack travel mm Folerance mm	: 15.60 : + 0.10	‡	Aneroid pressure

COMPENSATOR TEST	
2-stage LDA setti	ng
Rated speed rpm Pressure hPa	: 400 : 850
MEASUREMENT	
Pressure hPa rack travel mm Tolerance mm	: 500 : -1.60 : +- 0.15
Pressure hPa rack travel mm Tolerance mm	: 200 : -4.00 : +- 0.20
Pressure hPa rack travel mm Tolerance mm	: 1240 : 0.45 : +- 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 220
Check speed 1/min Check	: > 80
speed 1/min	: < 240
FUEL DELIVERY CHA	RACTERISTICS
hPa Rated speed rpm Del. quantity	: 150C : 1100
cm3/1000 strokes Tolerance	: 252.0
cm3/1000 strokes Check tolerance	: ← 1.5
cm3/1000s. Spreed	: +- 4.5
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
Aneroid pressure hPa Rated speed rpm	: 1500 : 700

Del. quantity cm3/1000 strokes : 258.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s.: +-6.0 Aneroid pressure 500 Rated speed rpm 400 Del. quantity cm3/1000 strokes : 185.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000s.4.0 Aneroid pressure hPa 500 Rated speed rpm : Del. quantity cm3/1000 strokes : 141.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000s.4.0 STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 240.0 Tolerance cm3/1000 strokes : + 10.0 Check tolerance cm3/1000S.: +- 14.0 LOW IDLE 300 Rated speed rpm : Rack travel in mm: 5.60 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 18.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 6.0 : +-Spreed Tolerance cm3/1000 strokes : 6.0

Check tolerance cm3/1000s. : 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 19.**0**9.97 : ISO 4113 Edition Test oil

Combination No. : 0 402 646 7850

Injection pump

Pump designation : PE6P120A320LS7869 EP type number : 0 412 626 387

Governor

Governer design. : RQV300...1050PA1078K

Governer no. : 0 421 815 359

Cust. part No. : 9882898

Customer-spec. information Customer : LIEBHERR

Motor : D 9406 TI-E A3 Power KW : 295.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity min. l/h : 165
Tolerance l/h : + 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.65 Tolerance mm : +- 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-6-3-5-2-

: 4

Fhasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

# BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 283.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance +	
cm3/1000s. : +- 4.0	Rated speed rpm : 470 guide sleeve
Spreed	travel mm : 3.64 Tolerance mm : + 0.25
Tolerance cm3/1000 strokes : 5.0	Rated speed rpm : 1330
Check tolerance	guide sleeve travel mm : 13.50
cm3/1000s. : 9.0	Tolerance mm : +- 0.50
‡	GUIDE SLEEVE POSITION
Rated speed rpm : 400	
Rack travel in num: 4.20	control lever
Tolerance mm : + 0.10 +	position degree : - 1
Del. quantity + cm3/1000 strokes : 10.0 +	Rated speed rpm : 1191
Tolerance	Rack travel in mm : 68.25
cm3/1000 strokes : +- 3.0 +- Check tolerance +-	Tolerance mm : +- 1.30
cm3/1000s. : +- 6.0	
Spreed + Tolerance +	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : 6.0	Rated speed rpm : 1000
Check tolerance +	Aneroid pressure
cm3/1000s. : 10.0 +	hPa : 1400
1	Del. quantity cm3/1000 strokes : 283.0
(B) SETTING OF INJECTION PUMP	Tolerance
WITH GOVERNOR +	cm3/1000 strokes : +- 1.0
+	Check tolerance
GUIDE SLEEVE TRAVEL	cm3/1000s. : +- 4.0
GOIDE SLEEVE TRAVEL	Spreed Tolerance
Rated speed rpm : 1117	cm3/1000 strokes : 5.0
guide steeve	Check tolerance
travel mm : 10.27	cm3/1000s. : 9.0
Tolerance mm : + 0.25	
Rated speed rpm : 300	
guide sleeve	CONTROL LEVER
travel mm : 1.14 + Tolerance mm : + 0.25 +	control lever
Total arice man	position degree : 116.0
Rated speed rpm : 755 guide sleeve	tolerance degree : +- 4.0
travel mm : 6.17	RATED SPEED
Tolerance mm : + 0.25	rack travel mm : 11.15
Paired annual man 1 702	Rated speed rpm : 1060
Rated speed rpm : 382 + guide sleeve +	Tolerance 1/min : +- 5
travel mm : 2.42	rack travel mm : 4.00
Tolerance mm : + 0.25	Rated speed rpm : 1160 Tolerance 1/min : +- 15
Rated speed rpm : 432	rocerdince minut . F- 13
guide sleeve	rack travel mm : 0.50
travel mm : 3.22 +	Tolerance mm : +- 0.50
Tolerance mm : +- 0.25 +	Rated speed rpm : 1200

Tolerance 1/min	: +- 15	† † †	Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: – : 9.30
LOW IDLE		— <u> </u>	MEASUREMENT	
control lever		1	Rated speed rpm	: 1000
position degree	: 75.0	+	Pressure hPa	: 850
tolerance degree	: +- 4.0	1	rack travel mm Tolerance mm	: 11.45
Setting point w/d	out bumper spring	<del>-</del>		
Rated speed rpm	: 300	‡	Pressure hPa rack travel mm	: 10.05
CRT mm min.	: > 8.00	1	Tolerance mm	: + 0.20
Testing:		Ī	FUEL DELIVERY CHA	APACTERISTICS
Rated speed rpm	: 400	Ţ	TOLL DELIVERY CITY	MACILITO I 103
rack travel mm Tolerance mm	: 4.20	+		
Tolerance mm	: +- 0.10	t	Aneroid pressure hPa	: 1400
Rated speed rpm	: 400	I	Rated speed rpm	
maca apoou vpm		+	Del. quantity	
TARRIER CALIFORN		<del>-</del> +	cm3/1000 strokes	: 272.0
TORQUE CONTROL Rated speed rpm	• 1000	†	Tolerance cm3/1000 strokes	· <del>_</del> 3 0
rack travel mm	: 12.15	I	Check tolerance	. +- 5.0
rack travel mm Tolerance mm	: +- 0.05	+	Check tolerance cm3/1000s.	: +- 6.0
Rated speed rpm	. 500	İ		
rack travel mm		1	Aneroid pressure	
Tolerance mm	: <del></del> 0.10	+	hPa	: 1400
Poted speed rom	• 800	†	Rated speed rpm	
Rated speed rpm rack travel mm	: 11.90	I	Del. quantity cm3/1000 strokes	: 297.5
Tolerance mm	: ← ₽.10	+	Tolerance	
	050	+	cm3/1000 strokes	: +- 3.0
Rated speed rpm rack travel mm	: 950 : 12.00	İ	Check tolerance cm3/1000s.	: +- 6.0
Tolerance mm	÷ ÷ 3.10	Ŧ	CIII37 10003.	
Rated speed rpm	: 600	‡	Aneroid pressure	
rack travel mm	: 10.45	+	hPa	: -
Tolerance mm	: <del>+-</del> 0.10	+	Rated speed rpm	: 550
		_	Del. quantity cm3/1000 strokes	: 245.5
ANEROID/ALTITUDE		+	Tolerance	
COMPENSATOR TEST		†	cm3/1000 strokes	: +- 1.0
		I	Check tolerance cm3/1000s.	: +- 4.0
SETTING		+	Spreed	· · · ·
<b>6 6</b>	. 4000	+	Tolerance	. 0.0
Rated speed rpm Pressure hPa	: 1000 : 1400	1	cm3/1000 strokes Check tolerance	: 8.0
rack travel mm	: 12.15	Ţ	cm3/1000s.	: 12.0
Tolerance mm	: +- 0.05	+		
		+		

## STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100 rack travel mm : 9.80 Tolerance mm : + 0.30 Del. quantity cm3/1000 strokes : 170.0 Tolerance cm3/1000 strokes : + 10.0 Check tolerance cm3/1000s. : + 14.0

## LOW IDLE

Rated speed rpm : 400 Rack travel in mm: 4.20 Tolerance mm :  $\leftarrow$  0.10 Del. quantity cm3/1000 strokes : 10.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : → 6.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 19.09.97 : ISO 4113 Edition Test oil

Combination No. : 0 402 676 823

Injection pump

Pump designation : PE6P12OA32OLS7885-1

EP type number : U 412 626 948

Governor

Governer design. : RSV400...1000P1A589

Governer no. : 0 421 833 449

Cust. part No. : 9881286

Customer spec. information Customer : LIEBHERR

Motor : D 9406 TI-E A3 Power KW : 258.0

#### TEST BENCH REQUIREMENTS

Inlat line : 3.1

Test oil inlet

temp.  $^{\circ}$ C : 40 Tolerance  $^{\circ}$ C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 Tolerance bar  $: \leftarrow 0.1$ 

Overflow quantity

min. L/h : 125 Tolerance L/h : +- 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.55 Tolerance mm : +- 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-6-3-5-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

# BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.75 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 265.0

Tolerance cm3/1000 strokes : +- 1.0	- Spreed - Tolerance - cm3/1000 strokes : 5.0
Check tolerance cm3/1000s. : +- 4.0	- Check tolerance - cm3/1000s. : 9.0
Spreed	<u>-</u>
Tolerance cm3/1000 strokes : 5.0	- CONTROL LEVER
Check tolerance cm3/1000s. : 9.0	control lever position degree : 106.0 tolerance degree : +- 4.0
Rated speed rpm : 400	RATED SPEED rack travel mm : 12.50 Rated speed rpm : 935 Tolerance 1/min : +- 5
Rack travel in mm: 5.00  Tolerance mm: + 0.10  Del. quantity cm3/1000 strokes: 26.0	rack travel mm : 4.00 Rated speed rpm : 1008 Tolerance 1/min : +- 15
Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000S. : + 6.0	- rack travel mm : 0.85 - Tolerance mm : +- 0.55 - Rated speed rpm : 1200
Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0	rack travel mm : 4.00 Rated speed rpm : 1031 Tolerance 1/min : + 15
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	- LOW IDLE
GUIDE SLEEVE POSITION	control lever position degree : 83.0 tolerance degree : +- 4.0
control lever position degree : - 3	- Setting point w/out bumper spring
Rated speed rpm : 800  Rack travel in mm : 0.50  Tolerance mm : + 0.20	Rated speed rpm : 400 rack travel mm : 3.50 Tolerance mm : +- 0.10
Total ance min	- Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900	Rated speed rpm : 400 rack travel mm : 5.00 Tolerance mm : +- 0.10
Aneroid pressure hPa : 1400 Del. quantity cm3/1000 strokes : 265.0	rack travel mm : 2.00 Rated speed rpm : 515 Tolerance 1/min : + 30
Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000S. : + 4.0	TORQUE CONTROL Rated speed rpm : 900

rack travel mm Tolerance mm	: 13.75 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm Tolerance mm	: 500 : 13.75 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1400 : 13.75 : +- 0.10
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: -
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 870 : 13.40 : +- 0.05
Pressure hPa rack travel mm Tolerance mm	: 740 : 12.50 : +- 0.10
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1400 : 700 : 272.0 : +- 3.0 : +- 6.0
Aneroid pressure hPa Rated speed rpm	: 1400 : 500

Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: - : 500 : 230.0 : +- 1.0 : +- 4.0 : 8.0 : 12.0
	4 V solenoid activated start position in max.

Rated speed rpm rack travel mm Tolerance mm	: 100 : 20.50 : +- 0.50
Del. quantity cm3/1000 strokes Tolerance	: 220.0
cm3/1000 strokes Check tolerance	: +- 15.0
cm3/1000s.	: +- 19.0

LOW IDLE	
Rated speed rpm	: 400
Rack travel in mm Tolerance mm Del. quantity	: 5.00 : +- 0.10
cm3/1000 strokes Tolerance	: 26.0
cm3/1000 strokes Check tolerance	: +- 3.0
cm3/1000S. Spreed	: +- 6.0

Tolerance

cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 : 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 22.09.97 : ISO 4113

Combination No. : 0 402 676 8230

Injection pump

Pump designation : PE6P12GA32OLS7885-1

EP type number : 0 412 626 948

Governor

Governer design. : RSV400...1000P1A589

Governer no. : 0 421 833 449

Cust. part No. : 9881286

Customer-spec. information

Customer

: LIEBHERR

Motor

: D 9406 TI-E A3

Power KW : 258.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

trmp. °C

Tolerance °C

: 40 : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar

: + 0.1

Tolerance L/h:  $\leftarrow$  10.0

Test nozzle holde assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar

: **←** 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter :

x Length mm : 1000

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.55 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-6-3-5-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.75

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 265.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 4.0	
Spreed	CONTROL LEVER
Tolerance - cm3/1000 strokes : 5.0 -	control lever position degree : 106.0 RATED SPEED
Check tolerance cm3/1000s. : 9.0	rack travel mm : 12.75 Rated speed rpm : 935 Tolerance 1/min : +- 5
Rated speed rpm : 400	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1200
Rack travel in mm: 5.00  Tolerance mm: + 0.10  Del. quantity	rack travel mm : 4.00 Rated speed rpm : 1030
cm3/1000 strokes : 26.0 - Tolerance -	Tolerance 1/min : +- 15
cm3/1000 strokes : + 3.0 Check tolerance	
cm3/1000S. : +- 6.0 Spreed Tolerance	- LOW IDLE
cm3/1000 strokes : 6.0 - Check tolerance -	- - control lever
cm3/1000s. : 10.0	- position degree : 83.0 -
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	- Setting point w/out bumper spring - - Rated speed rpm : 400 - rack travel mm : 3.50 - Tolerance mm : + 0.10
GUIDE SLEEVE POSITION	- - Testing: -
control lever position degree : - 3	- Rated speed rpm : 400 - rack travel mm : 5.00 - Tolerance mm : +- 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900  Aneroid pressure	TORQUE CONTROL Rated speed rpm : 900 rack travel mm : 13.75 Tolerance mm : +- 0.05
hPa : 1400 - Del. quantity	- - Rated speed rpm : 500
<pre>cm3/1000 strokes : 265.0 Tolerance cm3/1000 strokes : +- 1.0</pre>	rack travel mm : 13.75 Tolerance mm : +- 0.10
Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance	Rated speed rpm : 700 rack travel mm : 13.75 Tolerance mm : +- 0.30
cm3/1000 strokes : 5.0 - Check tolerance	- ANEROID/ALTITUDE
cm3/1000s. : 9.0	- COMPENSATOR TEST
+	-

#### SETTING

Rated speed rpm : 500 Pressure hPa : 1400 rack travel mm : 13.75 Tolerance mm : + 0.10

Rated speed rpm : 500 Pressure hPa rack travel mm : 11.90 Tolerance mm : ← 0.10

#### **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa 870 rack travel mm : 13.40 Tolerance mm : +- 0.05

Pressure hPa : 740 rack travel mm : 12.50 Tolerance mm :  $\leftarrow$  0.10

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

: 1400 Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 280.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s.

Aneroid pressure

: 1400 nPa Rated speed rpm : 700 Del. quantity

cm3/1000 strokes : 272.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s.: +- 6.0

Aneroid pressure

hPa 500 Rated speed rpm : Del. quantity

cm3/1000 strokes : 230.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.: <del>←</del> 4.0 Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s.

: 12.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : +-0.50

Del. quantity

cm3/1000 strokes : 220.0

Tolerance

cm3/1000 strokes : +- 10.0

Check tolerance

: +- 14.0 cm3/1000s.

#### LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 5.00 Tolerance mm : +- 0.10 Del. quantity

cm3/1000 strokes : 26.0

Tolerance

cm3/1000 strokes : +- 3.0Check tolerance

cm3/1000s. : +-6.0 Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 19.09.97 : ISO 4113

Combination No. : 0 402 678 826

Injection pump

Pump designation : PE8P120A320LS7878-1

EP type number : 0 412 628 906

Governor

Governer design. : RSV400...1000P1A589

Governer no. : 0 421 833 449

Cust. part No. : 9279387

Customer-spec. information

Customer

: LIEBHERR

Motor

: D 9408 TI-E

Power KW : 317.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Overflow quantity min. L/h : 105
Tolerance L/h : + 10.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter:

x length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.55 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-8-7-2-6 : - 3- 5- 4

: 0-45-90-135-180 Phasing

: -225-270-315 Tolerance : **←** 0.50

Check

: ÷- 0.75 tolerance \*NW

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.00 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 251.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s.	: + 4.0	+ Check tolerance + cm3/1000s. + Spreed
Spreed	والمنطقية والخالجة والأحدار التاريخ ويراق والماركة المراجعة الماكات والماكات والماكات والمنطقة الماكات	Tolerance cm3/1000 strokes
Tolerance cm3/1000 strokes	: 5.0	Check tolerance cm3/1000s.
Check tolerance cm3/1000S.	: 9.0	
		+ CONTROL LEVER
Rated speed rpm	: 400	control lever position degree tolerance degree
Rack travel in mm		+
Tolerance mm Del. quantity	: <del>+</del> 0.20	+ RATED SPEED + rack travel mm
cm3/1000 strokes	: 26.0	Rated speed rpm
Tolerance cm3/1000 strokes	: <del>+-</del> 3.0	† Tolerance 1/min
Check tolerance		T rack travel mm
cm3/1000s.	: <del>+</del> 6.0	+ Rated speed rpm
Spreed Tolerance		† Tolerance 1/min
cm3/1000 strokes	: 6.0	rack travel mm
Check tolerance	: 10.0	+ Tolerance mm
	* (11.11	T Pater speer rom
(B) SETTING OF INJ		+ Rated speed rpm + rack travel mm + Rated speed rpm - Tolerance 1/min
(B) SETTING OF IN. WITH GOVERNOR	ECTION PUMP	+ rack travel mm
cm3/1000s.  (B) SETTING OF IN. WITH GOVERNOR  GUIDE SLEEVE POSIT	ECTION PUMP	+ rack travel mm + Rated speed rpm
(B) SETTING OF INJ WITH GOVERNOR GUIDE SLEEVE POSIT	ECTION PUMP	rack travel mm Rated speed rpm Tolerance 1/min
(B) SETTING OF INJ WITH GOVERNOR GUIDE SLEEVE POSIT control lever position degree Rated speed rpm	ECTION PUMP  TION  : - 3 : 800	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree
(B) SETTING OF INL WITH GOVERNOR  GUIDE SLEEVE POSIT control lever position degree Rated speed rpm	ECTION PUMP  TION  : - 3 : 800	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree tolerance degree
(B) SETTING OF INL WITH GOVERNOR  GUIDE SLEEVE POSITE  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm	ECTION PUMP  TION  : - 3 : 800 : 0.50	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree tolerance degree Setting point w/ Rated speed rpm
(B) SETTING OF INL WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree Rated speed rpm  Rack travel in mm  Tolerance mm  governor spring pre-tension	ECTION PUMP  TION  : - 3 : 800 : 0.50 : +- 0.20	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree tolerance degree Setting point w/ Rated speed rpm rack travel mm
(B) SETTING OF IN. WITH GOVERNOR  GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Folerance mm  governor spring pre-tension	ECTION PUMP  TION  : - 3 : 800 : 0.50 : +- 0.20	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree tolerance degree Setting point w/ Rated speed rpm
(B) SETTING OF INL WITH GOVERNOR  GUIDE SLEEVE POSITE  control lever position degree Rated speed rpm  Rack travel in mm  Tolerance mm  governor spring pre-tension click setting x	ECTION PUMP  TION  : - 3 : 800 : 0.50 : +- 0.20	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree tolerance degree tolerance degree Setting point w/ Rated speed rpm rack travel mm Tolerance mm  Testing:
(B) SETTING OF INL WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree Rated speed rpm  Rack travel in mm  Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY	ECTION PUMP  TION  : - 3 : 800 : - 0.50 : + 0.20  : 4.00	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree tolerance degree Setting point w/ Rated speed rpm rack travel mm Tolerance mm  Testing: Rated speed rpm
(B) SETTING OF INL WITH GOVERNOR  GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY Rated speed rpm Aneroid pressure	ECTION PUMP  TION  : - 3 : 800 : 0.50 : + 0.20  : 4.00  AT FULL LOAD STOP : 900	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree tolerance degree tolerance degree Setting point w/ Rated speed rpm rack travel mm Tolerance mm  Testing:
(B) SETTING OF INL WITH GOVERNOR  GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm governor spring pre-tension click setting x  FULL LOAD DELIVERY Rated speed rpm Aneroid pressure hPa	ECTION PUMP  TION  : - 3 : 800 : - 0.50 : + 0.20  : 4.00	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree tolerance degree Setting point w/ Rated speed rpm rack travel mm Tolerance mm  Testing: Rated speed rpm rack travel mm Tolerance mm
(B) SETTING OF INL WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree Rated speed rpm  Rack travel in mm  Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm  Aneroid pressure hPa Del. quantity	ECTION PUMP  TION  : - 3 : 800 : 0.50 : + 0.20  : 4.00  AT FULL LOAD STOP : 900	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree tolerance degree Setting point w/ Rated speed rpm rack travel mm Tolerance mm  Testing: Rated speed rpm rack travel mm Tolerance mm  rack travel mm Tolerance mm
(B) SETTING OF INL WITH GOVERNOR  GUIDE SLEEVE POSITE  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x	ECTION PUMP  TION  : - 3 : 800 : 0.50 : + 0.20  : 4.00  AT FULL LOAD STOP : 900 : 1200	rack travel mm Rated speed rpm Tolerance 1/min  LOW IDLE  control lever position degree tolerance degree Setting point w/ Rated speed rpm rack travel mm Tolerance mm  Testing: Rated speed rpm rack travel mm Tolerance mm

Check tolerance cm3/1000s. Spreed	: +- 4.0
Tolerance cm3/1000 strokes Check tolerance	: 5.0
cm3/1000s.	: 9.0
CONTROL LEVER	
control lever position degree tolerance degree	: 94.0 : + 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 12.00 : 940 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 990 : + 15
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : +- 0.55 : 1160
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 995 : +- 15
LOW IDLE	
control lever position degree tolerance degree	: 70.0 : +- 4.0
Setting point w/o	ut bumper spring
Rated speed rpm rack travel mm Tolerance mm	: 400 : 3.65 : + 0.10
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 400 : 4.65 : +- 0.20
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 500 : +- 30

TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	: 900 : 13.00 : + 0.05 : 500 : 13.00 : + 0.05	+++++++++++	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1200 : 700 : 252.0 : +- 3.0 : +- 6.0
rack travel mm Tolerance mm  ANEROID/ALTITUDE	: 13.00 : + 0.05	 +	hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: - : 500 : 213.0
COMPENSATOR TEST		+++++++++++++++++++++++++++++++++++++++	cm3/1000 strokes Check tolerance cm3/10008.	: +- 1.0 . +- 4.C
SETTING Rated speed rpm	: 500	+	Spreed Tolerance cm3/1000 strokes	: 8.0
Pressure hPa rack travel mm Tolerance mm	: 1200 : 13.00 : + 0.05	+ + + + + + + + + + + + + + + + + + + +	Check tolerance cm3/1000s.	: 12.0
Rated speed rpm Pressure hPa rack travel mm	: 500 : - : 11.30	† †	STARTING FUEL DEL	TVEDY
Tolerance mm	: + 0.15	1	Rated speed rpm	: 100
MEASUREMENT	. 500	+	rack travel mm Tolerance mm	: 20.50 : +- 0.50
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 800 : 12.50 : + 0.05	++++	Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	. 220.0 : +- 20.0
Pressure hPa rack travel mm Tolerance mm	: 700 : 11.60 : + 0.10	+++++	cm3/1000s.	: +- 24.0
FUEL DELIVERY CHA	ARACTERISTICS	 +	LOW IDLE	
Aneroid pressure		Ī	Rated speed rpm	: 400
hPa Rated speed rpm Del. quantity		++++++	Rack travel in mm Tolerance mm Del. quantity	: +- 0.20
cm3/1000 strokes Tolerance cm3/1000 strokes		+ + +	cm3/1000 strokes Tolerance cm3/1000 strokes	
Check tolerance cm3/1000s.	: + 6.0	+++++++++++++++++++++++++++++++++++++++	Check tolerance cm3/1000s. Spreed	: +- 6.0
		•		

Tolerance cm3/1000 strokes : 6.0

Check tolerance cm3/1000s. : 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 19.09.97 Edition : 19.09.97 Test oil : ISO 4113

Combination No. : 0 402 678 826E

Injection pump

Pump designation : PE8P120A320LS7878-1

EP type number : 0 412 628 906

Governor

Governer design. : R3V400...1G00P1A589

Governer no. : 0 421 833 449

Cust. part No. : 9279387

Customer-spec. information Customer : LIEBHERR Motor : D 9408 TI-E Power KW : 317.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40 Tolerance °C :  $\leftarrow$  2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. l/h : 105 Tolerance l/h: +- 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.55 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-8-7-2-6 : - 3- 5- 4

: 0-45-90-135-180 Phasing : -225-270-315

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.00 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 251.0

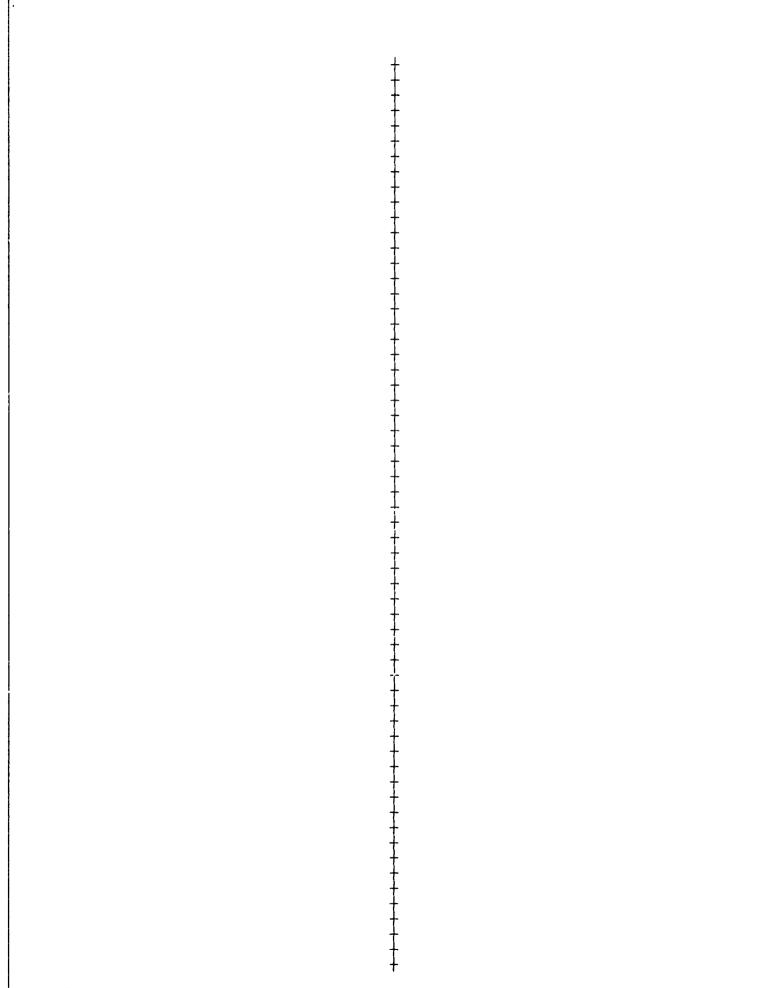
Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 4.0	- Check tolerance - cm3/1000s. : 9.0
Tolerance cm3/1000 strokes : 5.0	CONTROL LEVER  control lever
Check tolerance cm3/1000s. : 9.0	position degree : 94.0 tolerance degree : +- 4.0
Rated speed rpm : 400	RATED SPEED rack travel mm : 12.00 Rated speed rom : 940 Tolerance 1/min : +- 5
Rack travel in mm : 4.65  Tolerance mm : + 0.20  Del. quantity	rack travel mm : 4.00 Rated speed rpm : 990
cm3/1000 strokes : 26.0	Tolerance 1/min : +- 15
cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 6.0 Spreed	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1160
Tolerance - 6.0 Check tolerance	rack travel mm : 4.00 Rated speed rpm : 995 Tolerance 1/min : +- 15
cm3/1000s. : 10.0	-
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION	- LOW IDLE - control lever - position degree : 70.0
	tolerance degree : +- 4.0
control lever position degree : - 3	Setting point w/out bumper spring
governor spring	- Rated speed rpm : 400 - rack travel mm : 3.65
pre-tension -	rack travel mm : 3.65 Tolerance mm : +- 0.10
click setting x : 4.00	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 400 rack travel mm : 4.65
Rated speed rpm : 900 + Aneroid pressure +	Tolerance mm : + 0.20
hPa : 1200 + Del. quantity +	rack travel mm : 2.00 Rated speed rpm : 500
cm3/1000 strokes : 251.0	Tolerance 1/min : +- 30
cm3/1000 strokes : + 1.0 Check tolerance	TORQUE CONTROL
cm3/1000s. : +- 4.0 Spreed Tolerance	Rated speed rpm : 900 rack travel mm : 13.00 Tolerance mm : +- 0.05
cm3/1000 strokes : 5.0	

Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	: 500 : 13.00 : ← 0.05 : 700 : 13.00 : ← 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1200 : 13.00 : + 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 11.30 : +- 0.10
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 800 : 12.50 : + 0.05
Pressure hPa rack travel mm Tolerance mm	: 700 : 11.60 : + 0.10
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1200 : 500 : 263.0 : + 3.0 : + 6.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1200 : 700 : 252.0

Check tolerance cm3/1000s.	:	+	6.0	t
Aneroid pressure	•			
Rated speed rpm	:		550	
Del. quantity cm3/1000 strokes	:		213.0	1
Tolerance cm3/1000 strokes	:	+	1.0	1
Check tolerance cm3/1000S. Spreed	:	<del> </del>	4.0	ı
Tolerance cm3/1000 strokes	:		8.0	
Check tolerance cm3/1000S.	:		12.0	ŀ
STARTING FUEL DEL	IVE	RY		
Rated speed rpm rack travel mm Tolerance mm	•	+-	100 20.50 0.50	
Del. quantity cm3/1000 strokes	:		220.0	l
Tolerance cm3/1000 strokes	:	+	10.0	ı
Check tolerance cm3/1000s.	:	+-	14.0	1
LOW IDLE				
Rated speed rpm	:		400	
Rack travel in mm Tolerance mm	:	<del></del>	4.65 0.20	
Del. quantity cm3/1000 strokes	:		26.0	
Tolerance cm3/1000 strokes	: •	+-	3.0	
Check tolerance cm3/1000S. Spreed	: -	+	6.0	
Tolerance cm3/1000 strokes	:		6.0	
Check tolerance cm3/1000s.	:		10.0	



#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 18.09.97 Edition Test oil : ISO 4113

Combination No. : 0 402 746 632

Injection pump

Pump designation : PES6P120A720RS7366 EP type number : 0 412 726 933

Governor

Governer design. : RQ300/1050PA1340 Governer no. : 0 421 801 820

Cust. part No. :

Customer-spec. information

Customer : IVECO-FRANCE Motor : 8460.41s.7031

Power KW : 254.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C 40 : + 2.0 Tolerance °C

Overflow valve : 2 417 413 076

Inlet press. bar : Tolerance bar :  $\leftarrow$  0.1

Overflow quantity

min. L/h : 160
Tolerance L/h : + 20 : **←** 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar : +- 1.5 Tolerance bar

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

: 2.85 : +- 0.05 Prestroke mm Tolerance mm

Check

: + 0.10 tolerance mm

Rack travel in mm: 20.50 Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

tolerance °NW : + 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.95

Tolerance mm : +- 0.05	- guide sleeve
	travel mm : 6.13
Del. quantity	Tolerance mm : + 0.10
cm3/1000 strokes : 289.0	
	- Rated speed rpm : 399
Tolerance	- guide sleeve
cm3/1000 strokes : + 1.0	travel mm : 4.74
	Tolerance mm : +- 0.10
Check tolerance	
cm3/1000s. : +- 4.0	- Rated speed rpm : 480
	- guide sleeve
Spreed	travel mm : 6.00
Talamana.	Tolerance mm : +- 0.10
Tolerance cm3/1000 strokes : 5.0	Poted aread area at 1270
cm3/1000 strokes : 5.0	- Rated speed rpm : 1270
Chack to Longnes	guide sleeve
Check tolerance - cm3/1000s. : 9.0	- travel mm : 11.50
cm3/1000s. : 9.0	Tolerance mm : + 0.50
	Rated speed rpm : 877
	- guide sleeve
Rated speed rpm : 300	travel mm : 6.38
Nated operation . See	- Tolerance mm : +- 0.10
Rack travel in mm: 6.00	L Total and the second
Tolerance mm : → 0.10	
Del. quantity	GUIDE SLEEVE POSITION
cm3/1000 strokes : 23.0	-
Tolerance	-
cm3/1000  strokes : + 3.0	- control lever
Check tolerance	- position dagree : 199
$cm3/1000s.$ : $\leftarrow$ 6.0	- Rated speed rpm : 500
cm3/1000s. : + 6.0	- Rated speed rpm : 500 -
•	- Rated speed rpm : 500 - - Rack travel in mm : 20.00
Spreed	_
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance	- Rack travel in mm : 20.00
Spreed Tolerance cm3/1000 strokes : 8.0	- Rack travel in mm : 20.00 - Tolerance mm : +- 0.80
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance	- Rack travel in mm : 20.00
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rack travel in mm: 20.00 Tolerance mm: + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm: 1050 Aneroid pressure hPa: 1200 Del. quantity
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP	Rack travel in mm: 20.00 Tolerance mm: + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm: 1050 Aneroid pressure hPa: 1200 Del. quantity cm3/1000 strokes: 289.0
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL	Rack travel in mm: 20.00 Tolerance mm: + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm: 1050 Aneroid pressure hPa: 1200 Del. quantity cm3/1000 strokes: 289.0 Tolerance
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110	Rack travel in mm: 20.00 Tolerance mm: + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm: 1050 Aneroid pressure hPa: 1200 Del. quantity cm3/1000 strokes: 289.0 Tolerance cm3/1000 strokes: +- 1.0
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed
Tolerance cm3/1000 strokes: 8.0 Check tolerance cm3/1000s.: 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : + 0.15	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : +- 0.15  Rated speed rpm : 300	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 5.0
Tolerance cm3/1000 strokes: 8.0 Check tolerance cm3/1000s.: 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : + 0.15	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : +- 0.15  Rated speed rpm : 300 guide sleeve	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : 40.15  Rated speed rpm : 300 guide sleeve travel mm : 1.97 Tolerance mm : + 0.20	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : +- 0.15  Rated speed rpm : 300 guide sleeve travel mm : 1.97	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 9.0  RATED SPEED
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : +- 0.15  Rated speed rpm : 300 guide sleeve travel mm : 1.97 Tolerance mm : +- 0.20  Rated speed rpm : 1050 guide sleeve	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 9.0  RATED SPEED rack travel mm : 11.90
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : + 0.15  Rated speed rpm : 300 guide sleeve travel mm : 1.97 Tolerance mm : + 0.20  Rated speed rpm : 1050 guide sleeve travel mm : 6.50	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  RATED SPEED rack travel mm : 11.90 Rated speed rpm : 1103
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : +- 0.15  Rated speed rpm : 300 guide sleeve travel mm : 1.97 Tolerance mm : +- 0.20  Rated speed rpm : 1050 guide sleeve	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  RATED SPEED rack travel mm : 11.90 Rated speed rpm : 1103 Tolerance 1/min : +- 8
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : +- 0.15  Rated speed rpm : 300 guide sleeve travel mm : 1.97 Tolerance mm : +- 0.20  Rated speed rpm : 1050 guide sleeve travel mm : 6.50 Tolerance mm : +- 0.10	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000s trokes : 5.0 Check tolerance cm3/1000s. : 9.0  RATED SPEED rack travel mm : 11.90 Rated speed rpm : 1103 Tolerance 1/min : +- 8 Check
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1110 guide sleeve travel mm : 6.85 Tolerance mm : + 0.15  Rated speed rpm : 300 guide sleeve travel mm : 1.97 Tolerance mm : + 0.20  Rated speed rpm : 1050 guide sleeve travel mm : 6.50	Rack travel in mm : 20.00 Tolerance mm : + 0.80  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1050 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 289.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  RATED SPEED rack travel mm : 11.90 Rated speed rpm : 1103 Tolerance 1/min : +- 8

rack travel mm Rated speed rpm Tolerance 1/min Check speed 1/min	: 4.00 : 1190 : +- 15 : +- 20
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : 0.50 : 1350
LOW IDLE	
control lever position degree tolerance degree	: 74.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 8.15
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 6.00 : + 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 390 : + 20
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1050 : 12.95 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 500 : 14.10 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 700 : 13.90 : +- 0.10
Rated speed rpm rack travel mm Tolerance mm	
ANEROID/ALTITUDE COMPENSATOR TEST	

SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1200 : 14.10 : + 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : − : 9.20 : ← 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 250 : 10.45 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 500 : 12.60 : +- 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 200 : < 240
Check speed 1/min Check	: > 180
speed 1/min	: < 260
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: 1200 : 500

Aneroid pressure hPa Rated speed rpm Del. quantity	: 1200 : 500
cm3/1000 strokes	: 322.0
Tolerance cm3/1000 strokes Check tolerance	: +- 4.0
cm3/1000s.	: +- 7.0
Aneroid pressure	
hPa	: -
Rated speed rpm Del. quantity	: 600
cm3/1000 strokes Tolerance	: 151.0
cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 4.0

# STARTING FUEL DELIVERY

Rated speed rpm	: 100	
rack travel mm	: 11.65	
Tolerance mm	: <b>+-</b> 0.30	!
Del. quantity		
cm3/1000 strokes	: 110.0	1
Tolerance		
cm3/1000 strokes	: <b>←</b> 15.0	)
Check tolerance		
cm3/1000s.	: + 19.0	1

# LOW IDLE

Rated speed rpm	:	300	
Rack travel in mm Tolerance mm	: : +-	6.00 0.10	
Del. quantity cm3/1000 strokes Tolerance	:	23.0	
cm3/1000 strokes	: +-	3.0	
Check tolerance cm3/1000s. Spreed	: +-	6.0	
Tolerance cm3/1000 strokes Check tolerance	:	8.0	
cm3/1000s.	:	12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 04.09.97 Test oil : ISO 4113

Combination No. : 0 403 466 175

Injection pump

Pump designation : PES6MW100/120RS1240

EP type number : 0 413 406 239

Governor

Governer design. : RSV400...950MW2A395

Governer no. : 0 420 085 283

Cust. part No. : 3930113

Customer—spec. information

Customer : CDC

Motor : 6 CT-830 Power KW : 160.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C : 40 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : 3.35 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-: 4

Phasing

. 0-60 : -300 : 0-60-120-180-240

Tolarance

: +- 0.50

Check

tolerance °NW

: +- 0.75

Start of delivery blocking

°NW after s.o.d. : 8.00

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.15

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 154.0

Tolerance + cm3/1000 strokes : +- 1.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000s. : +- 4.0 Spreed
Spreed	Tolerance cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
Rated speed rpm : 400	control lever position degree : 93.0 tolerance degree : +- 4.0
Rack travel in mm: 5.80 Tolerance mm: + 0.30 Del. quantity cm3/1000 strokes: 20.7	RATED SPEED rack travel mm : 12.15 Rated speed rpm : 990 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000S. : + 4.5 Spreed	rack travel mm : 4.00 Rated speed rpm : 1040 Tolerance 1/min : +- 15
Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. : 5.5	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1200
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1055 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 68.0 tolerance degree : +- 4.0
Rack travel in mm: 0.65 Tolerance mm: + 0.35	Setting point w/out bumper spring
governor spring + pre-tension + click setting x : 4.00	Rated speed rpm : 400 rack travel mm : 5.30 Tolerance mm : +- 0.10
	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 950	Rated speed rpm : 400 rack travel mm : 5.80 Tolerance mm : +- 0.30
Aneroid pressure hPa : 1200  Del. quantity cm3/1000 strokes : 154.0	rack travel mm : 2.00 Rated speed rpm : 480 Tolerance 1/min : +- 30

TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 950 : 13.15 : +- 0.05	
Rated speed rpm rack travel mm Tolerance mm	: 750 : 13.15 : + 0.10	
ANEROID/ALTITUDE COMPENSATOR TEST		
SETTING		
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1200 : 13.15 : + 0.10	
Rated speed rpm Pressure h <sup>p</sup> a rack travel mm Tolerance mm	: 500 : - : 11.00 : +- 0.05	
MEASUREMENT		
Rated speed rpm	: 500	
Pressure hPa rack travel mm Tolerance mm	: 750 : 11.90 : + 0.15	
Pressure hPa rack travel mm Tolerance mm	: 600 : 11.30 : + 0.10	
FUEL DELIVERY CHARACTERISTICS		
Aneroid pressure hPa Rated speed rpm	: 1200 : 750	
Del. quantity cm3/1000 strokes Tolerance	: 157.2	
cm3/1000 strokes Check tolerance	: +- 2.0	
cm3/1000s. Spreed	: +- 5.0	
Tolerance cm3/1000 strokes	: 6.0	
Check tolerance cm3/1000s.	: 9.0	

Aneroid pressure			
hPa	:		-
Rated speed rpm	:		500
Del. quantity			
cm3/1000 strokes	:		119.1
Tolerance			
cm3/1000 strokes	:	+-	1.0
Check tolerance			
cm3/1000s.	:	+-	4.0

# STARTING FUEL DELIVERY

Check hydraulic start locking and unlocking device with 500...1000 hPa.

Rated speed rpm rack travel mm Tolerance mm	: 100 : 20.0 : + 1.0	
Del. quantity cm3/1000 strokes Tolerance	: 145	.0
cm3/1000 strokes Check tolerance	: +- 10	.0
cm3/1000s.	: +- 13	.0

			_
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٠.	.OW	100	

Rated speed rpm	: 400
Rack travel in mm Tolerance mm Del. quantity	: 5.80 : +- 0.30
cm3/1000 strokes Tolerance	: 20.7
cm3/1000 strokes Check tolerance	: + 2.0
cm3/1000s. Spreed Tolerance	: +- 4.5
cm3/1000 strokes Check tolerance	: 3.5
cm3/1000s.	: 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 25,09,97 : ISO 4113

Combination No. : 0 400 846 442

Injection pump

Pump designation : PES6A90D410RS2502 EP type number : 0 410 896 059

Governor

Governer design. : RQV250...1300AB1071D

: L

: 0 420 214 250 Governer no.

Cust. part No. :

Customer-spec. information : IVECO-OM Customer

Motor

: 8360.05.300

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve

: 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar

: 173.5

Tolerance bar

Test lines

: 1 680 750 003

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 2.20 : +- 0.05 Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.35 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 84.5

Tolerance

cm3/1000 strokes : +- 0.5

Check tolerance

cm3/1000s.

: +- 2.5

Spreed

Tolerance cm3/1000 strokes : 3.0	Tolerance mm : +- 1.20
Check tolerance cm3/1000s. : 4.5	FULL LOAD DELIVERY AT FULL LOAD STOP
	- Rated speed rpm : 1300 - Aneroid pressure - hPa : -
Rated speed rpm : 250	- Del. quantity - cm3/1000 strokes : 84.5
Rack travel in mm : 10.00 Tolerance mm : +- 0.10	- Tolerance - cm3/1000 strokes : +- 0.5
Del. quantity cm3/1000 strokes : 31.0	- Check tolerance - cm3/1000s. : +- 2.5
Tolerance cm3/1000 strokes : +- 2.0	- Spreed - Tolerance
Check tolerance cm3/1000s. : +- 4.0 Spreed	cm3/1000 strokes : 3.0 Check tolerance cm3/1000s. : 4.5
Tolerance cm3/1000 strokes : 2.0	-
(B) SETTING OF INJECTION PUMP	CONTROL LEVER
WITH GCVERNOR	control lever position degree : 117.0 tolerance degree : +- 4.0
GUIDE SLEEVE TRAVEL	- - RATED SPEED
Rated speed rpm : 1100 guide sleeve travel mm : 6.70 Tolerance mm : + 0.10	rack travel mm : 11.30 Rated speed rpm : 1345 Tolerance 1/min : +- 5
Rated speed rpm : 100 guide sleeve	rack travel mm : 4.00 Rated speed rpm : 1480 Tolerance 1/min : +- 15
travel mm : 0.50 Tolerance mm : + 0.20	- - rack travel mm : 0.50 - Tolerance mm : +- 0.50
Rated speed rpm : 400 guide sleeve	- Rated speed rpm : 1600
travel mm : 2.85 Tolerance mm : + 0.15	
Rated speed rpm : 800 guide sleeve	- LOW IDLE
travel mm : 5.05 Tolerance mm : +- 0.15	- control lever
Rated speed rpm : 1350 guide sleeve	- position degree : 76.0 - tolerance degree : +- 4.0
travel mm : 8.75 Tolerance mm : +- 0.05	- Setting point w/out bumper spring
	- Rated speed rpm : 100 -
GUIDE SLEEVE POSITION	- CRT mm min. : > 11.50
Rated speed rpm : 1325	- Testing: -
Rack travel in mm : 16.40	- Rated speed rpm : 250

rack travel mm	:	10.00
Tolerance mm	: +-	0.10

Rated speed rpm : 300

TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: : : +	1300 12.35 - 0.05
		500

Rated speed rpm : 500 rack travel mm : 12.55 : +- 0.05 Tolerance mm

Rated speed rpm : 800 rack travel mm : 12.50 Tolerance mm : + 0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa		_
Rated speed rpm	:	500

Del. quantity cm3/1000 strokes : 75.0

Tolerance

cm3/1000 strokes : +- 1.0Check tolerance cm3/1000s. : <del>+-</del> 3.5

Aneroid pressure

hPa Rated speed rpm : 800

Del. quantity

cm3/1000 strokes : 83.5

Tolerance

cm3/1000 strokes : + 1.5Check tolerance

cm3/1000s. : +- 4.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 16.30 Tolerance mm : ← 0.30 Del. quantity cm3/1000 strokes : 118.0

Tolerance

cm3/1000 strokes : +- 6.0

Check tolerance

: + 9.0 cm3/1000s.

#### LOW IDLE

Rated speed rpm : 250

Rack travel in mm: 10.00 Tolerance mm : + 0.10 Del. quantity

cm3/1000 strokes : 31.0

Tolerance

cm3/1000 strokes : + 2.0 Check tolerance

cm3/1000s. : +- 4.0 Spreed

Tolerance

cm3/1000 strokes : 2.0

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 30.09.97 Edition : ISO 4113 Test oil

Combination No. : 0 400 864 106

Injection pump

Pump designation : PES4A95D410/3RS2789

EP t,pe number : 0 410 894 995

Governor

Governer design. : RSV325...1250A5c879L

Governer no. : 0 420 232 634

Cust. part No. : 0423 2071 KY

Customer-spec. information Customer : KHD-DMI : BF4L 913 : 78.0 Motor Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.00 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : ← 1.50

Firing order : 1- 3- 4- 2

: 0-90-180-270 : +- 0.50 Phasing

Tolerance

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.50 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 87.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: +- 3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

	+
Check tolerance cm3/1000s. : 8.0	CONTROL LEVER
	control lever position degree : 102.0
Rated speed rpm : 325	tolerance degree : + 4.0
Rack travel in mm: 9.60 Tolerance mm: + 0.10 Del. quantity	RATED SPEED rack travel mm : 12.50 Rated speed rpm : 1295
cm3/1000 strokes : 14.0 Tolerance	+ Tolerance 1/min : + 5
<pre>cm3/1000 strokes : + 2.0 Check tolerance cm3/1000S. : + 4.5</pre>	rack travel mm : 4.00 Rated speed rpm : 1355 Tolerance 1/min : + 15
Spreed	+
Tolerance cm3/1000 strokes : 5.5 Check tolerance	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1565
cm3/1000s. : 9.0	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ Rated speed rpm : 1415 + Tolerance 1/min : +- 15
WITH GOYERHON	1
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : FREE Rated speed rpm : 800	control lever position degree : 69.0 tolerance degree : + 4.0
Rack travel in mm : 0.50 Tolerance mm : + 0.20	Setting point w/out bumper spring
<pre>governor spring pre-tension click setting x : 3.00</pre>	Rated speed rpm : 325 rack travel mm : 9.10 Tolerance mm : +- 0.10
	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 19.50
Rated speed rpm : 1250 Aneroid pressure	Testing:
hPa : - Del. quantity cm3/1000 strokes : 87.0 Tolerance	+ Rated speed rpm : 325 + rack travel mm : 9.60 + Tolerance mm : + 0.10
cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.0	rack travel mm : 2.00 Rated speed rpm : 605 Tolerance 1/min : +- 30
Spreed Tolerance	<u> </u>
cm3/1000 strokes : 3.5 Check tolerance	TORQUE CONTROL Rated speed rpm : 1250
cm3/1000s. : 8.0	+ rack travel mm : 13.50 + Tolerance mm : +- 0.05

Rated speed rpm rack travel mm Tolerance mm	: 500 : 14.20 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 750 : 13.90 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1400 : 14.20 : + 0.10
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 13.30 : + 0.10
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 300 : 13.70 : +- 0.10
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: - : 750
Del. quantity cm3/1000 strokes	: 85.0
Tolerance cm3/1000 strokes	: <del>+-</del> 2.0
Check tolerance cm3/1000s. Spreed	: + 4.0
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000s.	: 8.0
Aneroid pressure	• -
Rated speed rpm Del. quantity	: 500
cm3/1000 strokes	: 68.0

Tolerance cm3/1000 strokes Check tolerance cm3/1000S.	: 1		2.0 4.0		
STARTING FUEL DEL:	LVEF	?Y		<del></del>	
Rated speed rpm rack travel mm Tolerance mm	:		100 20.25 0.75		
Del. quantity cm3/1000 strokes	:		120.0		
Tolerance cm3/1000 strokes	: +	_	7.5		
Check tolerance cm3/1000s.	: +	_	10.0		
LOW IDLE Rated speed rpm	:		325		
Rack travel in mm Tolerance mm	: +		9.60 0.10		
Del. quantity cm3/1000 strokes Tolerance	:		14.0		
cm3/1000 strokes	: 1		2.0		
Check tolerance cm3/1000S. Spreed	: 4		4.5		
Tolerance cm3/1000 strokes	:		5.5		
Check tolerance cm3/1000S.	•		9.0		

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 30.09.97 : ISO 4113

Combination No. : 0 400 866 143

Injection pump

Pump designation : PES6A95D12ORS2773 EP type number : 0 410 896 904

Governor

Governer design. : RSV350...1250A0c2237

Governer no.

: 0 420 233 240

Cust. part No. :

Customer-spec. information Customer : CUMMINS Motor : 5BT Power KW : 118.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.15 Tolerance mm : +- 0.05 Check tolerance mm : + 0.10

Rack travel in mm: 10.50

: +- 1.50 Tolerance mm

Firing order : 1-5-3-6-2-: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 9.45 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 89.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

: +- 3.5 cm3/1000s.

L10

<u> </u>	Tolerance
Spreed	cm3/1000 strokes : 4.0
Talamana	Check tolerance
Tolerance + cm3/1000 strokes : 4.0 +	cm3/1000s. : 6.5
T 4.0	
Check tolerance	
cm3/1000s. : 6.5	CONTROL LEVER
+	
†	control lever
Rated speed rpm : 350	position degree : 93.0 tolerance degree : +- 4.0
Nated speed (pill : 350	coterance degree : +- 4.0
Rack travel in mm: 5.00	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 8.40
Del. quantity	Rated speed rpm : 1295
cm3/1000 strokes : 13.0	Tolerance 1/min : +- 5
Tolerance + 2.0 + 2.0	rack travel mm : 4.00
Check tolerance	Rated speed rpm : 1370
cm3/1000s. : + 4.5	Tolerance 1/min : +- 15
Spreed	
Tolerance	rack travel mm : 0.85
cm3/1000 strokes : 6.0	Tolerance mm : +- 0.55 Rated speed rpm : 1530
cm3/1000s. : 8.0	Rated speed rpm : 1530
+	rack travel mm : 4.00
+	Rated speed rpm : 1385
(B) SETTING OF INJECTION PUMP	Tolerance 1/min : + 15
WITH GOVERNOR	
I	
GUIDE SLEEVE POSITION	LOW IDLE
†	
control lever	control lever
position degree : -3	position degree : 74.0
Rated speed rpm : 800	tolerance degree : +- 4.0
+	
Rack travel in mm: 0.50	Setting point w/out bumper spring
Tolerance mm : +- 0.20	Dated aread area . ZEO
governor spring	Rated speed rpm : 350 rack travel mm : 5.50
pre-tension +	Tolerance mm : +- 0.10
click setting x : 3.00	
+	Rated speed rpm : 100
THE LOAD OF THE PARTY AT THE LOAD OTTO	
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 19.50
Rated speed rpm : 1250	Testing:
Aneroid pressure	
hPa : -	Rated speed rpm : 350
Del. quantity +	rack travel mm : 6.00
cm3/1000 strokes : 89.0 +	Tolerance mm : $\leftarrow$ 0.10
cm3/1000 strokes : +- 1.0 +	rack travel mm : 2.00
Check tolerance	Rated speed rpm : 520
cm3/1000s. : + 3.5	Tolerance 1/min : +- 30
Spreed	
144	
L11	

TORQUE CONTROL

Rated speed rpm : 1250 rack travel mm : 9.45
Tolerance mm : + 0.05

Rated speed rpm : 500 rack travel mm : 9.5 9.50 : + 0.10 Tolerance mm

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 73.0 Tolerance cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance

4.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 13.50 : + 0.20 Tolerance mm Del. quantity

cm3/1000 strokes : 114.0

Tolerance

cm3/1000s.

cm3/1000 strokes : +- 7.5

Check tolerance

cm3/1000s. : +- 10.0

## LOW IDLE

Rated speed rpm : 350

Rack travel in mm: 6.00 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 13.0

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. 4.5

Spreed Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. 8.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 29.04.97 Test oil : ISO 4113

Combination No. : 0 400 866 163

Injection pump

Pump designation : PES6A90D320/3RS2660 EP type number : 0 410 896 078

Governor

Governer design. : RSV325...1175A0C2247

: R

Governer no. : 0 420 233 264

Cust. part No. :

Customer-spec. information
Customer : MWM
Mctor : Tu226B-6
Power KW : 107.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5Tolerance bar :  $\leftarrow$  1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.00
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Beginning of delivery differende

and maximum rack

travel : 9.00
Tolerance mm : + 0.50
Difference ° CS : 4.00

## BASIC SETTING

Rated speed rpm : 1175

Rack travel in mm : 10.45
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 77.5

Tolerance cm3/1000 strokes : + 0.5	Tolerance - cm3/1000 strokes : +- 0.5 - Check tolerance
Check tolerance cm3/1000s. : +- 2.5	cm3/1000s. : +- 2.5 Spreed
Spreed	Tolerance : 3.0
Tolerance cm3/1000 strokes : 3.0	+ Check tolerance + cm3/1006s. : 5.0
Check tolerance cm3/1000s. : 5.0	CONTROL LEVER
	t control lever
Rated speed rpm : 325	position degree : 97.0 tolerance degree : +- 4.0
Rack travel in mm : 7.30	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 9.30
Del. quantity cm3/1000 strokes : 13.0	Rated speed rpm : 1220 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : + 3.0	rack travel mm : 4.00
Check tolerance	+ Rated speed rpm : 1255
cm3/1000s. : + 5.0 Spreed	Tolerance 1/min : +- 15
Tolerance	rack travel mm : 0.85
cm3/1000 strokes : 2.5	+ Tolerance mm : + 0.55
Check tolerance	Rated speed rpm : 1430
cm3/1000s. : 4.5	+ + rack travel mm : 4.00
	+ rack travel mm : 4.00 + Rated speed rpm : 1280
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever	t control lever
position degree : - 3	position degree : 68.0
Rated speed rpm : 800	tolerance degree : +- 4.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Setting point w/out bumper spring
	Rated speed rpm : 325
governor spring	rack travel mm : 6.80
pre-tension 7.50	Tolerance mm : + 0.10
click setting x : 3.50	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 19.50
Rated speed rpm : 1175	Testing:
Aneroid pressure	Poted around now . 725
hPa : 700 - Del. quantity	Rated speed rpm : 325 rack travel mm : 7.30
cm3/1000 strokes : 77.5	Tolerance mm : +- 0.10
	1

rack travel mm : 2.00 Rated speed rpm : 530 Tolerance 1/min : + 30	Check tolerance cm3/1000s. : + 3.5  Aneroid pressure
TORQUE CONTROL Rated speed rpm : 1175 rack travel mm : 10.45	+ hPa : 700 + Rated speed rpm : 500 + Del. quantity + cm3/1000 strokes : 78.0
Tolerance mm : + 0.05	Tolerance - cm3/1000 strokes : +- 1.0
Rated speed rpm : 500 rack travel mm : 11.45 Tolerance mm : + 0.05	Check tolerance cm3/1000s. : + 3.5
Rated speed rpm : 965 rack travel mm : 10.90 Tolerance mm : + 0.10	Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity
ANEROID/ALTITUDE COMPENSATOR TEST	+ cm3/1000 strokes : 62.0 + Tolerance + cm3/1000 strokes : +- 0.5 + Check tolerance
SETTING	cm3/1000s. : + 2.5
Rated speed rpm : 500 Pressure hPa : 700 rack travel mm : 11.45	STARTING FUEL DELIVERY
Tolerance mm : +- 0.05	Rated speed rpm : 100 rack travel mm : 20.25
Rated speed rpm : 500 Pressure hPa : - rack travel mm : 10.45	Tolerance mm : +- 0.75 Del. quantity
Tolerance mm : + 0.05	+ cm3/1000 strokes : 135.0 + Folerance + cm3/1000 strokes : +- 5.0
MEASUREMENT	Check tolerance cm3/1000s. : +- 8.0
Rated speed rpm : 500	‡
Pressure hPa : 210 rack travel mm : 10.70 Tolerance mm : +- 0.10	LOW IDLE
Pressure hPa : 275 rack travel mm : 11.05	Rated speed rpm : 325
Tolerance mm : + 0.05	Rack travel in mm : 7.30 Tolerance mm : +- 0.10 Del. quantity
FUEL DELIVERY CHARACTERISTICS	cm3/1000 strokes : 13.0 Tolerance
	- cm3/1000 strokes : +- 3.0 - Check tolerance
Aneroid pressure  hPa : 700  Rated speed rpm : 800	- cm3/1000s. : +- 5.0 - Spreed
Del. quantity cm3/1000 strokes : 83.5	+ Tolerance + cm3/1000 strokes : 2.5 + Check tolerance
Tolerance cm3/1000 strokes : +- 1.0	+ cm3/1000s. : 4.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 03.06.96 Test oil : ISO 4113

Combination No. : 0 400 366 183

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governer design. : RSV425...750A4C2213

: -5R

Governer no. : 0 420 233 326

Cust. part No. :

Customer-spec. information

Customer : CDC

: 6 CT 8.3 L Motor 135.0

Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 2.0

Test oil inlet

temp. °C

Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES

x inside diameter: 2.0 x length mm : 600

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 28.0

Tolerance bar : +- 1.0

Prestroke mm : 2.85
Tolerance mm : +- 0.05

Check

: ← 0.10 tolerance mm

Rack travel in mm: 10.50

Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

\*NW after s.o.d. : 10.00

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 14.05 Tolerance mm : +- 0.05		
Del. quantity cm3/1000 strokes : 145.5		
Tolerance cm3/1000 strokes : + 1.0		
Check tolerance cm3/1000s. : + 3.5		
Spreed		
Tolerance cm3/1000 strokes : 4.0		
Check tolerance cm3/1000s. : 6.5		
Rated speed rpm : 425		
Rack travel in mm : 6.10 Tolerance mm : + 0.10 Del. quantity		
cm3/1000 strokes : 20.0 Tolerance		
cm3/1000 strokes : + 2.0 Check tolerance		
cm3/1000s. : +- 4.5		
Spreed Tolerance		
cm3/1000 strokes : 6.0 Check tolerance		
cm3/1000s. : 8.0		
(B) SETTING OF INJECTION PUMP WITH GOVERNOR		
GUIDE SLEEVE POSITION		
control lever position degree : - 3 Rated speed rpm : 800		
Rack travel in mm : 0.50 Tolerance mm : + 0.20		
FULL LOAD DELIVERY AT FULL LOAD STOP		
Rated speed rpm : 750		

Aneroid pressure	: -
Del. quantity cm3/1000 strokes	: 145.5
Tolerance cm3/1000 strokes Check tolerance	: + 1.0
cm3/1000s. Spreed	: +- 3.5
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000s.	: 6.5
CONTROL LEVER	
control lever position degree tolerance degree	: 90.0 : +- 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 13.00 : 800 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 840 : +- 15
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : +- 0.55 : 950
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 845 : +- 15
LOW IDLE	**************************************

# LOW IDLE

control lever position degree : 80.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 425 rack travel mm : 5.60 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 425 rack travel mm : 6.10 Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 750 rack travel mm : 14.05 Tolerance mm : + 0.05

## STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 1.00
Del. quantity
cm3/1000 strokes : 147.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000s. : + 13.0

## LOW IDLE

Rated speed rpm : 425 Rack travel in mm: 6.10 Tolerance mm : + 0.10Del. quantity cm3/1000 strokes : 20.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s.: +- 4.5 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s.: 8.0

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 01.10.97 Test oil : ISO 4113

Combination No. : 0 400 866 194

Injection pump

Pump designation : PES6A100D320/3RS2763

EP type number : 0 410 806 006

Governor

Governer design. : RSV415...1175A0C2190

: -69R

Governer no. : 0 420 233 308

Cust. part No. : 3921135

Customer-spec. information

Customer : CDC

Motor

: 6 CT 8.3

Power KW

: 129.0

# TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C

40

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 28.0

Tolerance bar : +- 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

tolerance mm : **←** 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1175

Rack travel in mm : 9.45

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 99.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: +- 3.5

Spreed

Tolerance + cm3/1000 strokes : 4.0 +	
	CONTROL LEVER
Check tolerance cm3/1000s. : 6.5	<pre>control lever position degree : 90.0 tolerance degree : +- 4.0</pre>
Rated speed rpm : 415	RATED SPEED rack travel mm : 9.45
Rack travel in mm: 5.20 + Tolerance mm: + 0.10 + Del. quantity	rack travel mm : 9.45 Rated speed rpm : 1245 Tolerance 1/min : +- 5
cm3/1000 strokes : 16.5 + Tolerance +	rack travel mm : 4.00 Rated speed rpm : 1310
cm3/1000 strokes : + 2.0 + Check tolerance +	Tolerance 1/min : + 15
cm3/1000s. : + 4.5 Spreed Tolerance	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1350
cm3/1000 strokes :       6.0         Check tolerance cm3/1000s.       8.0	rack travel mm : 4.00 Rated speed rpm : 1315 Tolerance 1/min : +- 15
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	LOW IDLE
GUIDE SLEEVE POSITION +	Setting point w/out bumper spring
control lever position degree : -3 Rated speed rpm : 800	Rated speed rpm : 415 rack travel mm : 4.70 Tolerance mm : +- 0.10
Rack travel in mm: 0.50 + Tolerance mm: + 0.20 +	Rated speed rpm : 100  CRT mm min. : > 19.00
Toter arice half	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	~
Rated speed rpm : 1175 Aneroid pressure hPa : -	Rated speed rpm : 415 rack travel mm : 5.20 Tolerance mm : +- 0.10
Del. quantity cm3/1000 strokes : 99.5 Tolerance	rack travel mm : 2.00 Rated speed rpm : 490 Tolerance 1/min : +- 30
cm3/1000 strokes : + 1.0 + Check tolerance +	
cm3/1000s. : + 3.5 Spreed Tolerance	TORQUE CONTROL  Rated speed rpm : 1175  rack travel mm : 9.45
cm3/1000 strokes : 4.0 + Check tolerance	Tolerance mm : +- 0.05
cm3/1000s. : 6.5	Rated speed rpm : 800 rack travel mm : 10.80 Tolerance mm : +- 0.10

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm 800 Del. quantity

cm3/1000 strokes : 103.0

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s.4.0

# STARTING FUEL DELIVERY

Rated speed rpm 100 rack travel mm 20.25 Tolerance mm : + - 0.75

Del. quantity

cm3/1000 strokes : 155.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s. : + 13.0

# LOW IDLE

Rated speed rpm : 415

Rack travel in mm : 5.20 Tolerance mm : ← 0.10

Del. quantity

cm3/1000 strokes : 16.5

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. 4.5

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 01.10.97 : ISO 4113

Combination No. : 0 400 866 197

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 030

Governor

Governer design. : RSV450...1100A0C2238

: -3R

Governer nc.

: 0 420 233 330

Cust. part No. :

Customer-spec. information Customer : CDC

: 6 CT 830 Motor Power KW : 151.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : +- 1.0

Prestroke mm 2.85 : +- 0.05 Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 : +- 1.50 Tolerance mm

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

"NW after s.o.d. : 11.00 Tolerance : +- 0.50

Check

tolerance "NW : +- 0.75

: 1 Barrel no.

BASIC SETTING

Rated speed rpm : 1100

	+
Rack travel in mm : 12.15 Tolerance mm : +- 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 120.5	Rated speed rpm : 1100 Aneroid pressure
Tolerance	+ hPa : 900 + Del. quantity + cm3/1000 strokes : 120.5
Check tolerance cm3/1000S. ; + 3.5	+ Tolerance + cm3/1000 strokes : + 1.0 + Check tolerance
Spreed	cm3/1000s. : +- 3.5 Spreed
Tolerance cm3/1000 strokes : 4.0	+ Tolerance + cm3/1000 strokes : 4.0 + Check tolerance
Check tolerance cm3/1000s. : 6.5	+ cm3/1000s. : 6.5
	CONTROL LEVER
Rated speed rpm : 450  Rack travel in mm : 5.70	control lever position degree : 96.0 tolerance degree : + 4.0
Tolerance mm : + 0.10  Del. quantity  cm3/1000 strokes : 18.0	RATED SPEED
Tolerance cm3/1000 strokes : +- 2.0	T + rack travel mm : 4.00 + Rated speed rpm : 1210
Check tolerance cm3/1000s. : +- 4.5 Spreed	Tolerance 1/min : +- 15  ASSEMBLY GOVERNOR SETTING
Tolerance cm3/1000 strokes : 6.0	Rated speed rpm : 1143
Check tolerance cm3/1000S. : 8.0	rack travel mm : 11.15 Rated speed rpm : 1200
(B) SETTING OF INJECTION PUMP	+ Tolerance 1/min : +- 5 + rack travel mm : 4.00
WITH GOVERNOR	+ rack travel mm : 0.85 + Tolerance mm : +- 0.55 + Rated speed rpm : 1360
GUIDE SLEEVE POSITION	+
control lever position degree : - 3	Rated speed rpm : 1144 rack travel mm : 11.15
Rated speed rpm : 800  Rack travel in mm : 0.50	+ Rated speed rpm : 1201 + Tolerance 1/min : +- 5 + rack travel mm : 4.00
Tolerance mm : + 0.20	rack travel mm : 0.85
governor spring pre-tension click setting x : 4.25	Tolerance mm : +- 0.55
	Rated speed rpm : 1145 rack travel mm : 11.15

Rated speed rpm Tolerance 1/min	: +- 5
rack travel mm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm	
Rated speed rpm Tolerance 1/min rack travel mm	: 1203 : + 5 : 4.00
rack travel mm Tolerance mm	: 0.85 : + 0.55
Rated speed rpm rack travel mm	: 1147 : 11.15
Rated speed rpm Tolerance 1/min rack travel mm	: <del>+</del> 5
rack travel mm Tolerance mm	: 0.85 : → 0.55
Rated speed rpm rack travel mm	: 1148 : 11.15
Rated speed rpm Tolerance 1/min rack travel mm	: 1205 : +- 5 : 4.00
rack travel mm Tolerance mm	: 0.85 : +- 0.55
LOW IDLE	
control lever position degree tolerance degree	: 74.0 : +- 4.0
Setting point w/o	out bumper spring
Rated speed rpm rack travel mm Tolerance mm	: 450 : 5.20 : +- 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.50

Rated speed rpm rack travel mm Tolerance mm rack travel mm Rated speed rpm Tolerance 1/min	: 450 : 5.70 : + 0.10 : 2.00 : 515 : + 30	
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1100 : 12.15 : ← 0.05	
Rated speed rpm rack travel mm Tolerance mm		
Rated speed rpm rack travel mm Tolerance mm		
ANEROID/ALTITUDE COMPENSATOR TEST		
SETTING		
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 900 : 13.10 : +- 0.10	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 10.45 : +- 0.10	
MEASUREMENT		
Rated speed rpm	: 500	
Pressure hPa rack travel mm Tolerance mm	: 560 : 12.35 : +- 0.20	
Pressure hPa rack travel mm Tolerance mm	: 385 : 11.45 : +- 0.05	
FUEL DELIVERY CHARACTERISTICS		

Aneroid pressure

hPa : Rated speed rpm :

900 750

Testing:

Del. quantity cm3/1000 strokes : 137.5 Tolerance cm3/1000 strokes : +-2.0 Check tolerance cm3/1000s. 4.0 Aneroid pressure hPa 500 Rated speed rpm Del. quantity cm3/1000 strokes : 82.5 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000s.3.0 STARTING FUEL DELIVERY Rated speed rpm 100 20.00 rack travel mm : Tolerance mm : +- 1.00 Del. quantity cm3/1000 strokes : 146.0 Tolerance cm3/1000 strokes : + 10.0Check tolerance cm3/1000s.: **←** 13.0 LOW IDLE Rated speed rpm : 450 Rack travel in mm : 5.70 : + 0.10Tolerance mm Del. quantity cm3/1000 strokes : 18.0 Tolerance 2.0 cm3/1000 strokes : +-Check tolerance cm3/1000s. Spreed Tolerance 6.0 cm3/1000 strokes : Check tolerance 8.0 cm3/1000s.End of test specification sheet

### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.97 Test oil : ISO 4113

Combination No. : 0 400 866 198

Injection pump

Pump designation : PES6A100D320/3RS2763

EP type number : 0 410 806 006

Governor

Governer design. : RSV400...950A0c2238

: -4R

Governer no. : 0 420 233 331

Cust. part No. :

Customer-spec. information

Customer : CDC

Motor : 6 CT 8.3 Power KW : 145.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.85
Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 12.15 Tolerance mm : +- 0.05

Toterance mm : +- U.

Del. quantity

cm3/1000 strokes : 121.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 3.5

Spreed

Tolerance - 4.0	- Check tolerance - cm3/1000s. : 6.5
Check tolerance - cm3/1000s. : 6.5 -	
	CONTROL LEVER
Rated speed rpm : 400	control lever position degree : 96.0 tolerance degree : +- 4.0
Rack travel in mm : 5.20 - Tolerance mm : + 0.10 -	RATED SPEED
Del. quantity cm3/1000 strokes : 15.0 - Tolerance -	rack travel mm : 11.10 Rated speed rpm : 995 Tolerance 1/min : +- 5
cm3/1000 strokes : + 2.0 - Check tolerance	rack travel mm : 4.00
cm3/1000s. : +- 4.5  Spreed Tolerance	Rated speed rpm : 1070 Tolerance 1/min : +- 5
cm3/1000 strokes : 6.0 - Check tolerance	rack travel mm : 0.85 Tolerance mm : +- 0.55
cm3/1000s. : 8.0	Rated speed rpm : 1200
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : - 3	- control lever
Rated speed rpm : 800	- position degree : 79.0 - tolerance degree : +- 4.0
Rack travel in mm : 0.50  Tolerance mm : + 0.20	Setting point w/out bumper spring
governor spring	- Rated speed rpm : 400
pre-tension click setting x : 2.50	rack travel mm : 4.70 Tolerance mm : +- 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	- - Rated speed rpm : 100
Rated speed rpm : 950	CRT mm min. : > 19.00
Aneroid pressure hPa : 900	- Testing:
Del. quantity cm3/1000 strokes : 121.5	- Rated speed rpm : 400 - rack travel mm : 5.20
Tolerance cm3/1000 strokes : + 1.0	- Tolerance mm : +- 0.10
Check tolerance cm3/1000s. : + 3.5	- rack travel mm : 2.00 - Rated speed rpm : 470
Spreed Tolerance	- Tolerance 1/min : +- 30
cm3/1000 strokes : 4.0	TORQUE CONTROL

Rated speed rpm : 950 rack travel mm : 12.15 Tolerance mm : +- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

# SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.15
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 9.80
Tolerance mm : + 0.10

## **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 305 rack travel mm : 11.70 Tolerance mm : +- 0.20

Pressure hPa : 220 rack travel mm : 11.20 Tolerance mm : + 0.05

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 76.5
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000s. : + 4.5

## STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + 0.75
Del. quantity
em3/1000 strokes : 160.0
Tolerance

cm3/1000 strokes : +- 10.0

Check tolerance cm3/1000s. : +- 13.0

## LOW IDLE

Rated speed rpm : 400 Rack travel in mm: 5.20 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 15.0 Tolerance cm3/1000 strokes : +- 2.0Check tolerance cm3/1000s. 4.5 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 01.10.97 : ISO 4113

Combination No. : 0 400 866 208

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governer design. : RSV400...1100A0C2190

: -80R

Governer no.

: 0 420 233 319

Cust. part No. :

Customer-spec. information

Customer : CDC

Motor

: 6 CT 8.3

Power KW

: 156.6

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

M<sub>0</sub>2

x inside diameter: 2.0 x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar :

Tolerance bar :  $\leftarrow$  1.0

Prestroke mm : 2.85
Tolerance mm : + G.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

\*NW after s.o.d. : 10.00

Tolerance : ← 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35

Tolerance mm	: +- 0.05	+ Rated speed rpm	: 1100
Del. quantity cm3/1000 strokes	. 12/ 5	Aneroid pressure	: -
	: 124.5	+ Del. quantity + cm3/1000 strokes	: 124.5
Tolerance cm3/1000 strokes	: + 1.0	+ Tolerance + cm3/1000 strokes	: +- 1.0
Check tolerance		+ Check tolerance + cm3/1000s.	: +- 3.5
cm3/1000s.	: + 3.5	+ Spreed + Tolerance	
Spreed		+ cm3/1000 strokes + Check tolerance	: 4.0
Tolerance cm3/1000 strokes	: 4.0	cm3/1000s.	: 6.5
Check tolerance cm3/1000s.	: 6.5	CONTROL LEVER	
		control lever	. 0/ 0
Rated speed rpm	: 400	position degree tolerance degree	: 96.0 : +- 4.0
Rack travel in mm		RATED SPEED	
Tolerance mm	: + 0.10	+ rack travel mm	: 11.30
Del. quantity		Rated speed rpm	: 1145
cm3/1000 strokes	: 18.0	† Tolerance 1/min	: +- 5
Tolerance		+	
cm3/1000 strokes	: +- 2.0	† rack travel mm	: 4.00
Check tolerance		+ Rated speed rpm	: 1200
cm3/1000s.	: +- 4.5	+ Tolerance 1/min	: + 15
Spreed		+	
Tolerance		rack travel mm	: 0.85
cm3/1000 strokes	: 6.0	Tolerance mm	: + 0.55
Check tolerance	·	Rated speed rpm	: 1365
cm3/1000s.	: 8.0	+	
		rack travel mm	: 4.00
		+ Rated speed rpm	: 1210
(B) SETTING OF IN	JECTION PUMP	+ Tolerance 1/min	: +- 15
WITH GOVERNOR		‡	
GUIDE SLEEVE POSI	TION	LOW IDLE	
control lever		control lever	
position degree	: - 3	position dearee	: 74.0
Rated speed rpm		tolerance degree	: +- 4.0
Rack travel in mm		T Setting point w/c	out bumper spring
Tolerance mm	: + 0.20	+	
		+ Rated speed rpm	
governor spring		+ rack travel mm	
pre-tension	• /, 25	† Tolerance mm	: + 0.10
click setting x	• <del>4</del> • <i>CJ</i>	Rated speed rpm	: 100
FILL LOAD DELTAGE	V AT THE LOAD STOD	† CDT	. > 10 50

CRT mm min. : > 19.50

FULL LOAD DELIVERY AT FULL LOAD STOP

# Testing:

Rated speed rpm : 400 rack travel mm : 5.40 Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1100 rack travel mm : 12.35 Tolerance mm : + 0.05

### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 Tolerance mm : + 1.00

Del. quantity

cm3/1000 strokes : 146.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s. : + 13.0

## LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 5.40 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 18.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 8.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 15.09.97 : ISO 4113

Combination No.

: 0 400 866 219

Injection pump

Pump designation : PES6A95D12ORS2860 EP type number : 0 410 896 889

Governor

Governer design. : RSV425...1050A002260

: -3R

Governer no.

: 0 420 233 344

Cust. part No. : 32 82 684

Customer-spec. information : CUMMINS Customer Motor : 6 BT : 113.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C 40 Tolerance °C 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar : +- 1.5 Tolerance bar

: 1 680 750 014 Test lines

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

°NW after s.o.d. : 11.50 : + - 0.50Tolerance

Check

tolerance  $^{\circ}NW$  : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.90

M<sub>0</sub>5

Tolerance mm : + 0.05	Rated speed rpm : 1050
Del. quantity	+ Aneroid pressure + hPa : 1100 - Del. quantity
	+ cm3/1000 strokes : 97.0
Tolerance cm3/1000 strokes : + 1.0	Tolerance
Check tolerance	+ Check tolerance + cm3/1000s. : + 3.0
cm3/1000s. : +- 3.0	Spreed Tolerance
Spreed	cm3/1000 strokes : 3.5
Tolerance	Check tolerance cm3/1000s. : 8.0
cm3/1000 strokes : 3.5	
Check tolerance	
cm3/1000s. : 8.0	CONTROL LEVER
	control lever
	position degree : 90.0
Rated speed rpm : 425	tolerance degree : +- 4.0
Rack travel in mm : 6.95	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 9.90
Del. quantity	Rated speed rpm : 1095
cm3/1000 strokes : 16.8	Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : + 2.0	† rack travel mm : 4.00
Check tolerance	Rated speed rpm : 1140
cm3/1000s. : +- 4.5	Tolerance 1/min : +- 15
Spreed	+
Tolerance	rack travel mm : 0.85
cm3/1000 strokes : 5.5	Tolerance mm : +- 0.55
Check tolerance - cm3/1000s. : 9.0	Rated speed rpm : 1330
CREAT 10003 9.0	rack travel mm : 4.00
	Rated speed rpm : 1175
(B) SETTING OF INJECTION PUMP - WITH GOVERNOR -	Tolerance 1/min : +- 15
	+
CUIDE OF FOUE DOCUTION	LOW TOLE
GUIDE SLEEVE POSITION	+ LOW IDLE
control lever	+ - control lever
position degree : - 3	tontrol lever position degree : 70.0
Rated speed rpm : 800	tolerance degree : +- 4.0
•	+
Rack travel in mm : 0.50 - Tolerance mm : + 0.20 -	Setting point w/out bumper spring
	Rated speed rpm : 425
governor spring	rack travel mm : 5.95
pre-tension - click setting x : 1.75 -	Tolerance mm : +- 0.10
ection setting v . 1.13	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	+ CRT mm min. : > 19.50
- OFF FOWN METTAGK! WI LOFF FOWN 2106	T CRI IIIII IIII. : / 19.3U

Testing:		+ Rated speed rpm	: 450
3		+ Del. quantity	
Rated speed rpm	: 425	+ cm3/1000 strokes	: 98.0
rack travel mm	: 6.95	+ Tolerance	
Tolerance mm	: <b>+</b> 0.10	+ cm3/1000 strokes	: +- 1.0
made descent as	. 2.00	+ Check tolerance	
rack travel mm Rated speed rpm	: 2.00 : 590	+ cm3/1000s.	: +- 3.0
Tolerance 1/min		I	
TOTAL TAILE TAILET	• ' 50	Aneroid pressure	
		- hPa	: -
TORQUE CONTROL		+ Rated speed rpm	: 500
Rated speed rpm		+ Del. quantity	
rack travel mm		+ cm3/1000 strokes	: 67.0
Tolerance mm	: <del>+-</del> 0.05	+ Tolerance	. 1.0
Dated aroud non	. /.50	cm3/1000 strokes	: +- 1.0
Rated speed rpm	: 430	+ Check tolerance + cm3/1000s.	: +- 3.0
rack travel mm Tolerance mm	: +- 0.10	Ţ (1115) 10003.	. 1 5.0
TO COT GITTOC TIKIT	• • • • • • • • • • • • • • • • • • • •	1	
Rated speed rpm	: 550	<u> </u>	
rack travel mm		+ STARTING FUEL DELI	VERY
Tolerance mm	: + 0.10	· +	
		+ Rated speed rpm	: 100
ANEDOSO (AL TYTLING			14.00
ANEROID/ALTITUDE COMPENSATOR TEST		Tolerance mm	: +- 0.20
COMPENSATOR 1EST		+ Del. quantity + cm3/1000 strokes	: 115.0
		+ Tolerance	. 117.0
SETTING		+ cm3/1000 strokes	: +- 7.5
		- Check tolerance	
Rated speed rpm	: 450	- cm3/1000s.	: +- 10.0
Pressure hPa	: 1100	+	
rack travel mm		+	
Tolerance mm	: <del></del> 0.05	†	
Rated speed rpm	: 500	+ LOW IDLE	
Pressure hPa	. 500	I LOW IDEE	
rack travel mm	9.80	Rated speed rpm	: 425
Tolerance mm	: + 0.10	+	
		+ Rack travel in mm	
MEASUREMENT		+ Tolerance mm	: <b>←</b> 0.10
Date of a seal man		+ Del. quantity	47.5
Rated speed rpm	: 450	cm3/1000 strokes	: 16.8
Pressure hPa	: 420	+ Tolerance + cm3/1000 strokes	: +- 2.0
rack travel mm	: 10.10	+ Check tolerance	2.0
Tolerance mm	: +- 0.10	+ cm3/1000s.	: +- 4.5
, , , , , , , , , , , , , , , , , , , ,		Spreed	
Pressure hPa	: 730	+ Tolerance	
rack travel mm	: 10.95	+ cm3/1000 strokes	: 5.5
Tolerance mm	: ← 0.05	+ Check tolerance	0.0
		+ cm3/1000s.	: 9.0
		<u> </u>	
FUEL DELIVERY CHA	RACTERISTICS	I	
. OLL PELIVENT UIM	13730   E1720   200		· · · · · · · · · · · · · · · · · · ·
		+	
Aneroid pressure		+ End of test specif	ication sheet
hPa	: 1100	+	

M07

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 01.10.97 : ISO 4113

Combination No. : 0 400 866 228

Injection pump

Pump designation : PES6A95D410/3RS2909 EP type number : 0 410 896 883

Governor

Governer design. : RSV325...1250A50872L

Governer no.

: 0 420 232 627

Cust. part No. : 0423 2042 KY

Customer-spec. information

Motor

Customer : KHD-DMI : BF6L 913C

Power KW

: 141.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

: 173.5

Tolerance bar

**:** +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

## **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

Prestroke mm

2.60

: +- 0.05 Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance °NW : +- 0.75

# BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.80

Tolerance mm

: +- 0.05

Del. quantity

cm3/1000 strokes : 105.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s.

: +- 3.0

Spreed

ToLerance - cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 8.0
Check tolerance - cm3/1000s. : 8.0 -	
	CONTROL LEVER
Rated speed rpm : 325	control lever position degree : 106.0 tolerance degree : +- 4.0
Rack travel in mm : 4.80 - Tolerance mm : + 0.10 -	RATED SPEED
Del. quantity - cm3/1000 strokes : 11.5 - Tolerance -	rack travel mm : 10.80 Rated speed rpm : 1295 Tolerance 1/min : + 5
cm3/1000 strokes : +- 2.0	
Check tolerance - cm3/1000s. : ÷ 4.5 - Spreed - Tolerance - cm3/1000s.	rack travel mm : 4.00 Rated speed rpm : 1355 Tolerance 1/min : +- 15
cm3/1000 strokes : 5.5	rack travel mm : 0.85
Check tolerance - cm3/1000s. : 9.0 -	Tolerance mm : +- 0.55 Rated speed rpm : 1515
(B) SETTING OF INJECTION PUMP	rack travel mm : 4,00 Rated speed rpm : 1365 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever - position degree : FREE - Rated speed rpm : 800 -	control lever position degree : 71.0 tolerance degree : + 4.0
Rack travel in mm : 0.50 - Tolerance mm : + 0.20 -	Setting point w/out bumper spring
governor spring - pre-tension -	Rated speed rpm : 325 rack travel mm : 4.30
click setting x : 4.00	rack travel mm : 4.30 Tolerance mm : +- 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP -	Rated speed rpm : 100
Rated speed rpm : 1250	CRT mm min. : > 19.50
Aneroid pressure	Testing:
Del. quantity cm3/1000 strokes : 105.0	Rated speed rpm : 325 rack travel mm : 4.80
Tolerance - cm3/1000 strokes : +- 1.0	Tolerance mm : +- 0.10
Check tolerance cm3/1000s. : +- 3.0	rack travel mm : 2.00 Rated speed rpm : 455 Tolerance 1/min : +- 30
Spreed Tolerance cm3/1000 strokes : 3.5	Tolerance 1/min : +- 30
-	TORQUE CONTROL

Rated speed rpm rack travel mm Tolerance mm	: 1250 : 11.80 : +- 0.05	
Rated speed rpm rack travel mm Tolerance mm	: 750 : 11.85 : ← 0.10	
ANEROID/ALTITUDE COMPENSATOR TEST		
SETTING		
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1450 : 11.80 : + 0.10	
Rated speed rpm Pressure hPa		
rack travel mm Tolerance mm	: - : 10.00 : + 0.10	
MEASUREMENT		
Rated speed rpm	: 500	
Pressure hPa rack travel mm Tolerance mm	: 470 : 11.30 : + 0.05	
Pressure hPa rack travel mm Tolerance mm	: 320 : 10.70 : - 0.10	
FUEL DELIVERY CHARACTERISTICS		
Aneroid pressure	: -	
Rated speed rpm Del. quantity	: 750	
cm3/1000 strokes Tolerance	: 104.0	
cm3/1000 strokes Check tolerance	: + 2.0	
cm3/1000s.	: +- 4.0	
Aneroid pressure	• _	
hPa Rated speed rpm	: 500	
Del. quantity cm3/1000 strokes Tolerance	: 67.0	
cm3/1000 strokes	: <del></del> 2.0	

		4.0	
IVI	ERY		
:	+	100 13.70 0.20	
:		125.0	
:	+-	7.5	
:	+-	10.0	
:		325	
:		325	
:	+-	4.80 0.10	
•		11.5	
:	+-	2.0	
:	+	4.5	
:		5.5	
:		9.0	
		: +- : +- : : : : : : : : : : : : : : :	: 100 : 13.70 : + 0.20 : 125.0 : + 7.5 : + 10.0 : 4.80 : + 0.10 : 11.5 : + 2.0 : + 4.5 : 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 01.10.97 : ISO 4113

Combination No. : 0 400 866 229

Injection pump

Pump designation : PES6A95D410/3RS2907

EP type number : 0 410 896 884

Governor

Governer design. : RSV325...1250A50873L

Governer no. : 0 420 232 628

Cust. part No. : 0423 2077 KY

Customer-spec. information Customer : KHD-DMI : BF6L 913 Motor

Power KW

: 118.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar

: 173.5

Tolerance bar

: + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

: 3.00 : + 0.05 Prestroke mm Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-186-240

: -300

: +- 0.50 Tolerance

Check

tolerance °NW : +- 0.75

# BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.00

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 82.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed	Tolerance cm3/1000 strokes : 3.5
Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 8.0
Cilist Took Strokes . 3.3	Ciii 5/ 10005 0.0
Check tolerance + cm3/1000s. : 8.0 +	
	CONTROL LEVER
<u> </u>	control lever
Rated speed rpm : 325	position degree : 103.0
Rack travel in mm : 9.60 +	tolerance degree : +- 4.0
Tolerance mm : +- 0.10	RATED SPEED
Del. quantity	rack travel mm : 12.00
cm3/1000 strokes : 14.5	Rated speed rpm : 1295
Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : + 2.0 +	
Check tolerance	rack travel mm : 4.00
cm3/1000s. : +- 4.5 +- 5	Rated speed rpm : 1355 Tolerance 1/min : +- 15
Tolerance	Tolerance 1/min : +- 15
cm3/1000 strokes : 5.5	rack travel mm : 0.85
Check tolerance	rack travel mm : 0.85 Tolerance mm : +- 0.55
$cm3/1000s$ . : 9.0 $\frac{1}{1}$	Rated speed rpm : 1565
†	mode through my / 00
(B) SETTING OF INJECTION PUMP	rack travel mm : 4.00 Rated speed rpm : 1415
WITH GOVERNOR	Tolerance 1/min : +- 15
+	
+	
GUIDE SLEEVE POSITION +	
GOIDE SLEEVE POSITION	LOW IDLE
+	2011 2022
control lever	
position degree : FREE +	control lever
Rated speed rpm : 800	position degree : 70.0
Rack travel in mm : 0.50	tolerance degree : +- 4.0
Tolerance mm : + 0.20	Setting point wout bumper spring
+	
governor spring +	Rated speed rpm : 325
pre-tension +	
	rack travel mm : 9.10
click setting x : 3.25	rack travel mm : 9.10 Tolerance mm : +- 0.10
	rack travel mm : 9.10 Tolerance mm : +- 0.10
	rack travel mm : 9.10
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 9.10 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 325
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250	rack travel mm : 9.10 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 9.60
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure	rack travel mm : 9.10 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 325
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1000	rack travel mm : 9.10 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 9.60 Tolerance mm : +- 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure	rack travel mm : 9.10 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 9.60 Tolerance mm : +- 0.10  rack travel mm : 2.00
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 82.5 Tolerance	rack travel mm : 9.10 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 9.60 Tolerance mm : +- 0.10  rack travel mm : 2.00
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 82.5 Tolerance cm3/1000 strokes : + 1.0	rack travel mm : 9.10 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 9.60 Tolerance mm : +- 0.10  rack travel mm : 2.00 Rated speed rpm : 610
Click setting x : 3.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250  Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 82.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	rack travel mm : 9.10 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 9.60 Tolerance mm : +- 0.10  rack travel mm : 2.00 Rated speed rpm : 610 Tolerance 1/min : +- 30
Click setting x : 3.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 82.5 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 3.0	rack travel mm : 9.10 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 9.60 Tolerance mm : +- 0.10  rack travel mm : 2.00 Rated speed rpm : 610 Tolerance 1/min : +- 30  TORQUE CONTROL
Click setting x : 3.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250  Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 82.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	rack travel mm : 9.10 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 9.60 Tolerance mm : +- 0.10  rack travel mm : 2.00 Rated speed rpm : 610 Tolerance 1/min : +- 30

Tolerance mm:  $\leftarrow 0.05$ Rated speed rpm : 500 rack travel mm : 14.10 Tolerance mm : +- 0.10 Rated speed rpm : 750 rack travel mm : 13.90 Tolerance mm : +0.10ANEROID/ALTITUDE COMPENSATOR TEST SETTING 500 Rated speed rpm Pressure hPa 1000 rack travel mm : 14.10 : + 0.10 Tolerance mm Rated speed rpm 500 Pressure hPa 13.30 rack travel mm Tolerance mm : +- 0.10 **MEASUREMENT** 500 Rated soeed rpm : 250 Pressure hPa rack travel mm : 13.80 : +- 0.05 Tolerance mm FUEL DELIVERY CHARACTERISTICS Aneroid pressure : 1000 Rated speed rpm : 750 Del. quantity cm3/1000 strokes : 85.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s.: +- 4.0 Aneroid pressure hPa

STARTING FUEL DELIVERY Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : +- 1.00 Del. quantity cm3/1000 strokes : 120.0 Tolerance cm3/1000 strokes : + 7.5Check tolerance cm3/1000S.: +- 10.0 LOW IDLE Rated speed rpm : 325 Rack travel in mm : 9.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 14.5 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. 4.5 Spreed Tolerance cm3/1000 strokes : 5.5 Check tolerance cm3/1000s. : 9.0

End of test specification sheet

Tolerance

cm3/1000s.

Rated speed rpm :

Check tolerance

Del. quantity cm3/1000 strokes : 69.5

cm3/1000 strokes : + 1.0

500

: **←** 3.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 01.10.97 Test oil : ISO 4113

Combination No. : 0 400 866 231

Injection pump

Pump designation : PES6A95D410/3RS2907

EP type number : 0 410 896 884

Governor

Governer design. : RSV325...900A1C875L

Governer no. : 0 420 232 630

Cust. part No. : 0423 2058 KY

Customer-spec. information

Customer : KHD-DMI Motor

: BF6L 913/C

Power KW

: 112.0

## TEST BENCH REQUIREMENTS

Inlet line

: 3.1

Test oil inlet

temp. °C

40

Tolerance  $^{\circ}C$  : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.00 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240

: -300 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.80

Del. quantity

cm3/1000 strokes : 97.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

	+ Check tolerance
Tolerance cm3/1000 strokes : 3.5	cm3/1000s. : 8.0
Check tolerance cm3/1000s. : 8.0	CONTROL LEVER
	t control lever
Rated speed rpm : 325	position degree : 89.0 tolerance degree : +- 4.0
Rack travel in mm : 8.20 Del. quantity	RATED SPEED : 12.80
cm3/1000 strokes : 11.5 Tolerance	+ Rated speed rpm : 895 + Tolerance 1/min : +- 5
cm3/1000 strokes : +- 2.0	+
Check tolerance cm3/1000s. : + 4.5 Spreed	+ rack travel mm : 4.00 + Rated speed rpm : 920 + Tolerance 1/min : - 10
Tolerance cm3/1000 strokes : 5.5	rack travel mm : 0.85
Check tolerance cm3/1000s. : 9.0	Tolerance mm : +- 0.55 Rated speed rpm : 1095
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 945
	‡
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : FREE Rated speed rpm : 800	control lever position degree : 67.0 tolerance degree : +- 4.0
Rack travel in mm: 0.50 Tolerance mm: +- 0.20	+ Setting point w/out bumper spring
governor spring	Rated speed rpm : 325 rack travel mm : 7.70
pre-tension click setting x : 2.25	Tolerance mm : +- 0.10
Click Setting X . 2.25	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	T CRT mm min. : > 19.50
Rated speed rpm : 850 Aneroid pressure	Testing:
hPa : - Del. quantity	Rated speed rpm : 325 rack travel mm : 8.20
cm3/1000 strokes : 97.0	rack travel mm : 2.00
Tolerance cm3/1000 strokes : + 1.0 Check tolerance	+ Rated speed rpm : 2.00 + Rated speed rpm : 415 + Tolerance 1/min : +- 30
cm3/1000s. : + 3.0 Spreed	
Tolerance cm3/1000 strokes : 3.5	TORQUE CONTROL Rated speed rpm : 850 rack travel mm : 13.80

Rated speed rpm : 500

## STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + 0.75
Del. quantity
cm3/1000 strokes : 130.0
Tolerance
cm3/1000 strokes : + 7.5

Check tolerance cm3/1000s. : + 10.0

# LOW IDLE

Rated speed rpm : 325 Rack travel in mm : 8.20 Del. quantity cm3/1000 strokes : 11.5 Tolerance cm3/1000 strokes : +-2.0 Check tolerance cm3/1000s.4.5 Spreed! Tolerance cm3/1000 strokes : 5.5 Check tolerance cm3/1000s.9.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 01.10.97 Test oil : ISO 4113

Combination No. : 0 400 874 238

Injection pump

Pump designation : PES4A95D41ORS2685 EP type number : 0 410 894 996

Governor

Governer design. : RSV400...1000A1c2187

Governer no. : 0 420 232 387

Cust. part No. :

Customer-spec. information Customer : LIEBHERR
Notor : DOGA NA : D904 NA : 90.0 Motor Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.85 Tolerance mm : +- 0.05 Check tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-3-4-2

Phasing : 0-90-180-270 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Beginning of delivery differende

and maximum rack

travel : 9.00
Tolerance mm : +- 0.50
Difference ° CS : 4.50

### BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 12.25 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 120.0

Tolerance

cm3/1000 strokes : +- 1.0

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Check tolerance cm3/1000s. : +- 3.0  Spreed  Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : +- 3.0 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	CONTROL LEVER
Rated speed rom : 415	control lever position degree : 94.0 tolerance degree : + 4.0
Rack travel in mm: 6.20 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes: 19.0 Tolerance cm3/1000 strokes: + 2.0	RATED SPEED  rack travel mm : 11.20  Rated speed rpm : 1025  Tolerance 1/min : + 5
Check tolerance cm3/1000S: + 4.5 Spreed Tolerance cm3/1000 strokes: 3.5	rack travel mm : 4.00 Rated speed rpm : 1050 Tolerance 1/min : + 15 rack travel mm : 0.85
Check tolerance cm3/1000s. 5.5	Tolerance mm : +- 0.55 Rated speed rpm : 1230
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : +- 10
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20	control lever position degree : 69.0 tolerance degree : +- 4.0  Setting point w/out bumper spring
governor spring pre-tension click setting x : 2.50	Rated speed rpm : 415 rack travel mm : 6.70 Tolerance mm : +- 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 100
Rated speed rpm : 975 Aneroid pressure	+ CRT mm min. : > 19.50 + Testing:
hPa : - Del. quantity cm3/1000 strokes : 120.0 Tolerance cm3/1000 strokes : + 1.0	Rated speed rpm : 415 rack travel mm : 6.20 Tolerance mm : +- 0.10
	+ rack travel mm : 2.00

Rated speed rpm : 565
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 975 rack travel mm : 12.25 Tolerance mm : +- 0.05

Rated speed rpm : 500 rack travel mm : 12.30 rack travel mm : : +- 0.10 Tolerance mm

### STARTING FUEL DELIVERY

Rated speed rpm 100 rack travel mm : 20.25 : + 0.75 Tolerance mm Del. quantity

cm3/1000 strokes : 125.0

Tolerance cm3/1000 strokes : +- 5.0

Check tolerance

cm3/1000s.: +-8.0

# LOW IDLE

Rated speed rpm : 415

Rack travel in mm : 6.20 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 19.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. 4.5

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 01.10.97 Test oil : ISO 4113

Combination No. : 0 400 374 254

Injection pump

Pump designation : PES4A95D32ORS2847 EP type number : 0 410 894 990

Governor

Governer design. : RSV375...1200A5C2268

Governer no. : 0 420 233 337

Cust. part No. :

Customer-spec. information Customer : VALMET Motor : 420 DS : 84.0 Power KW

### TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet

tamp. °C : 40 : +- 2.0 40 Tolerance °C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 2.55 Tolerance mm : +- 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-2-4-3

Check

tolerance °NW : +- 0.75

Beginning of delivery differende

and maximum rack

travel : 9.00
Tolerance mm : + 0.50
Difference °CS : 5.00

# BASIC SETTING

Del. quantity cm3/1000 strokes : 100.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 3.0

Spreed

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Tolerance cm3/1000 strokes : 3.5 Check tolerance	Check tolerance cm3/1000s. : 6.0
cm3/1000s. : 6.0	CONTROL LEVER
	- CONTROL LEVER
Rated speed rpm : 375	control lever position degree : 104.0 tolerance degree : +- 4.0
Rack travel in mm : 5.20 Tolerance mm : + 0.10 Del. quantity	+ RATED SPEED + rack travel mm : 11.50
cm3/1000 strokes : 13.0 Tolerance	+ Rated speed rpm : 1245 + Tolerance 1/min : + 5
cm3/1000 strokes : + 3.0 Check tolerance	rack travel mm : 4.00
cm3/1000s. : + 5.5 Spreed	Rated speed rpm : 1325 Tolerance 1/min : + 15
Tolerance cm3/1000 strokes : 3.5 Check tolerance	rack travel mm : 0.85 Tolerance mm : + 0.55
cm3/1000s. : 5.0	Rated speed rpm : 1425
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1330 Tolerance 1/min : + 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever	+
position degree : -3 Rated speed rpm : 800	control lever position degree : 73.0 tolerance degree : +- 4.0
Rack travel in mm : 0.50 Tolerance mm : + 0.20	Setting point w/out bumper spring
governor spring	Rated speed rpm : 375
pre-tension click setting x : 4.50	rack travel mm : 4.70 Tolerance mm : +- 0.10
	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 19.50
Rated speed rpm : 1200 Aneroid pressure	Testing:
hPa : 700 Del. quantity	Rated speed rpm : 375
cm3/1000 strokes : 100.0 Tolerance	rack travel mm : 5.20 Tolerance mm : + 0.10
cm3/1000 strokes : + 1.0 Check tolerance	rack travel mm : 2.00
cm3/1000s. : +- 3.0 Spreed Tolerance	Rated speed rpm : 475 Tolerance 1/min : +- 30
cm3/1000 strokes : 3.5	TORQUE CONTROL

Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING Rated speed rpm Pressure hPa rack travel mm Tolerance mm  Rated speed rpm Pressure hPa rack travel mm Tolerance mm  MEASUREMENT Rated speed rpm Pressure hPa rack travel mm Tolerance mm  Pressure hPa rack travel mm Tolerance mm  Pressure hPa rack travel mm Tolerance mm  FUEL DELIVERY CHAR	: 500 : 13.20 : + 0.05 : 1050 : 13.00 : + 0.10 : 500 : 700 : 13.20 : + 0.05 : 500 : - 12.00 : + 0.10 : 500 : + 0.10
rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa rack travel mm Tolerance mm  MEASUREMENT Rated speed rpm Pressure hPa rack travel mm Tolerance mm  MEASUREMENT Rated speed rpm Pressure hPa rack travel mm Tolerance mm  Pressure hPa rack travel mm Tolerance mm  Tolerance mm	: 13.00 : + 0.10 : 500 : 700 : 13.20 : + 0.05 : 500 : 12.00 : + 0.10 : 500 : 440 : 440
COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa rack travel mm Tolerance mm  Rated speed rpm Pressure hPa rack travel mm Tolerance mm  MEASUREMENT  Rated speed rpm Pressure hPa rack travel mm Tolerance mm  Pressure hPa rack travel mm Tolerance mm  Tolerance mm  Tolerance mm	: 700 : 13.20 : + 0.05 : 500 : 12.00 : + 0.10 : 500 : 350 : 12.40 : + 0.15 : 440
Rated speed rpm Pressure hPa rack travel mm Tolerance mm  Rated speed rpm Pressure hPa rack travel mm Tolerance mm  MEASUREMENT  Rated speed rpm  Pressure hPa rack travel mm Tolerance mm  Pressure hPa rack travel mm Tolerance mm	: 700 : 13.20 : + 0.05 : 500 : 12.00 : + 0.10 : 500 : 350 : 12.40 : + 0.15 : 440
Pressure hPa rack travel mm Tolerance mm  Rated speed rpm Pressure hPa rack travel mm Tolerance mm  MEASUREMENT  Rated speed rpm  Pressure hPa rack travel mm Tolerance mm  Pressure hPa rack travel mm Tolerance mm  Tolerance mm	: 700 : 13.20 : + 0.05 : 500 : 12.00 : + 0.10 : 500 : 350 : 12.40 : + 0.15 : 440
Pressure hPa rack travel mm Tolerance mm  MEASUREMENT  Rated speed rpm  Pressure hPa rack travel mm Tolerance mm  Pressure hPa rack travel mm Tolerance mm	: 12.00 : + 0.10 : 500 : 350 : 12.40 : + 0.15 : 440
Rated speed rpm  Pressure hPa rack travel mm  Tolerance mm  Pressure hPa rack travel mm  Tolerance mm	: 350 : 12.40 : ← 0.15
Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm Tolerance mm	: 350 : 12.40 : ← 0.15
rack travel mm Tolerance mm Pressure hPa rack travel mm Tolerance mm	: 12.40 : ← 0.15 : 440
rack travel mm Tolerance mm	
FUEL DELIVERY CHAR	: 12.90 : +- 0.05
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 700 : 500 : 91.0
cm3/1000 strokes Check tolerance cm3/1000s.	: +- 2.0 : +- 4.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: - 500

Tolerance cm3/1000 strokes Check tolerance cm3/1000S. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000S.	: +- 1.0 : +- 3.0 : 3.5 : 6.0
STARTING FUEL DELI	IVERY
Rated speed rpm rack travel mm Del. quantity	: 100 : 20.25
cm3/1000 strokes	: 205.0
Tolerance cm3/1000 strokes	: +- 5.0
Check tolerance cm3/1000S.	: +- 10.0
LOW IDLE Rated speed rpm	: 375
·	
Rack travel in mm Tolerance mm Del. quantity	: 5.20 : +- 0.10
cm3/1000 strokes	: 13.0
Tolerance cm3/1000 strokes	: +- 3.0
Check tolerance cm3/1000s. Spreed	: +- 5.5
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000s.	: 5.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 01.10.97 : ISO 4113

combination No. : 0 400 874 257

Injection pump

Pump designation : PES4A95D32ORS2807 EP type number : 0 410 894 994

Governor

Governer design. : RSV375...1125A2C898R

Governer no.

: 0 420 233 351

cust. part No. : 8367 54718

Customer-spec. information customer : SISU : 420 DS Motor Power KW : 75.0

# TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 Tolerance bar

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 600 x length mm :

### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

: 2.55 Prestroke mm : + 0.05 Tolerance mm

Check

: + 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-2-4-3

: 0-90-180-270 Phasing Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Beginning of delivery differende

and maximum rack

9.00 travel Tolerance mm : +- 0.50 Difference °CS : 5.00

### BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm : 11.25 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 87.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : + 3.0  Spreed	Check tolerance cm3/1000s. : 8.0
Tolerance cm3/1000 strokes : 3.5	CONTROL LEVER
Check tolerance cm3/1000s. : 8.0	control lever position degree : 101.0 tolerance degree : + 4.0
Rated speed rpm : 375	RATED SPEED - rack travel mm : 10.20 - Rated speed rpm : 1170 - Tolerance 1/min : +- 5
Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 21.0	rack travel mm : 4.00 Rated speed rpm : 1250 Tolerance 1/min : +- 15
Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1410
Spreed Tolerance cm3/1000 strokes : 5.5 Check tolerance	rack travel mm : 4.00 Rated speed rpm : 1260 Tolerance 1/min : + 15
cm3/1000s. : 9.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR	LOW IDLE
GUIDE SLEEVE POSITION	control lever position degree : 75.0
GOIDE SECEVE 1 GOITTON	tolerance degree : +- 4.0
control lever position degree : - 3 Rated speed rpm : 800	Setting point w/out bumper spring  Rated speed rpm : 375
Rack travel in mm : 0.50 Tolerance mm : + 0.20	rack travel mm : 5.10 Tolerance mm : +- 0.10 Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 19.50
Rated speed rpm : 1125 Aneroid pressure	Testing:
hPa : - Del. quantity cm3/1000 strokes : 87.5	Rated speed rpm : 375 rack travel mm : 5.60 Tolerance mm : + 0.10
Tolerance cm3/1000 strokes : + 1.0 Check tolerance	rack travel mm : 2.00 Rated speed rpm : 495
cm3/1000S. : +- 3.0 Spreed Tolerance	Tolerance 1/min : +- 30
cm3/1000 strokes : 3.5	TORQUE CONTROL

Rated speed rpm : 1125 rack travel mm : 11.25 Tolerance mm : +- 0.05 Rated speed rpm 500 rack travel mm : 11.60 Tolerance mm : +- 0.05 : 750 Rated speed rpm 11.55 rack travel mm : +- 0.05 Tolerance mm Rated speed rpm : 965 rack travel mm : 11.35

FUEL DELIVERY CHARACTERISTICS

Tolerance mm : +- 0.10

Aneroid pressure hPa Rated speed rpm : 750 Del. quantity

cm3/1000 strokes : 87.5

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. ; +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm 100 rack travel mm : 20.25 Tolerance mm : +- 0.75 Del. quantity

cm3/1000 strokes : 200.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  8.0

Check tolerance

: +- 11.0 cm3/1000s.

LOW IDLE

Rated speed rpm : 375

5.60 Rack travel in mm: Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 21.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance : +- 4.5 cm3/1000s.

Spreed Tolerance

5.5 cm3/1000 strokes :

Check tolerance

cm3/1000s. 9.0

End of test specification sheet

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#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 01, 10, 97 : ISO 4113

Combination No. : 0 400 876 321

Injection pump

Pump designation : PES6A95D32ORS2684 EP type number : 0 410 896 917

Governor

Governer design. : RSV325...1050A0C2178

: -2R

Governer no.

: 0 420 233 178

Cust. part No. :

Customer-spec. information : VALMET Customer Motor : 611D : 79.0 Power KW

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.0

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

173.5 : + 1.5 Tolerance bar

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm 2.55 : + 0.05Tolerance mm

Check

: + 0.10tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance °NW : +- 0.75

Beginning of delivery differende

Difference ° CS : 5.00

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 7.95 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 66.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s. : +- 3.0	Check tolerance cm3/1000s. : +- 3.0
Spreed	Spreed Tolerance
Tolerance +	cm3/1000 strokes : 3.5 Check tolerance
cm3/1000 strokes : 3.5	cm3/1000s. : 6.0
Check tolerance	
cm3/1000s. : 6.0	CONTROL LEVER
Rated speed rpm : 325	control lever position degree : 44.0
Rack travel in mm: 4.15	tolerance degree : +- 4.0
Tolerance mm : + 0.05	RATED SPEED
Del. quantity + cm3/1000 strokes : 15.0 +	rack travel mm : 6.90 Rated speed rpm : 1095
Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : +- 2.0 +- Check tolerance	rack travel mm : 4.00
cm3/1000s. : +- 4.5	rack travel mm : 4.00 Rated speed rpm : 1145
Spreed	Tolerance 1/min : +- 15
Tolerance + cm3/1000 strokes : 3.5	rack travel mm : 0.85
Check tolerance	Tolerance mm : +- 0.55
cm3/1000s. : 5.5	Rated speed rpm : 1295
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1150 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	4
+	LOW IDLE
control lever	
position degree : -3	control lever
Rated speed rpm : 800	position degree : 26.0
Rack travel in mm: 0.50	tolerance degree : +- 4.0
Tolerance mm : + 0.20	Setting point w/out bumper spring
governor spring	Rated speed rpm : 325
pre-tension + click setting x : 5.00 +	rack travel mm : 4.70 Tolerance mm : +- 0.10
terok secting x	
FULL LOAD DELIVERY AT FULL LOAD STOP	Testing:
FOLE EOAD DELIVERY AT FOLE LOAD STOP	Rated speed rpm : 325
Rated speed rpm : 1050	rack travel mm : 4.15
Aneroid pressure	Tolerance mm : +- 0.05
Del. quantity	rack travel mm : 2.00
om 1000 strokes 44.0</td <td></td>	
cm3/1000 strokes : 66.0	Rated speed rpm : 450
Tolerance cm3/1000 strokes : +- 1.0	

### TORQUE CONTROL

0.70 Dimension a mm : Rated speed rpm : 1050 rack travel mm : 7.95 : **←** 0.05 Tolerance mm

Rated speed rpm : 500 rack travel mm : 8.65 Tolerance mm : +- 0.05

Rated speed rpm : 840 rack travel mm : 8.30 Tolerance mm : + 0.10

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 500 Rated speed rpm :

Del. quantity

cm3/1000 strokes : 58.5

Tolerance

cm3/1000 strokes : +- 1.5

Check tolerance

: +- 4.0 cm3/1000s.

Aneroid pressure

hPa

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75

## LOW IDLE

Rated speed rpm : 325

Rack travel in mm: 4.15 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 15.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

: **←** 4.5 cm3/1000s.

Spreed

Tolerance cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s.

: 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

**Edition** : 01,10,97 Test oil : ISO 4113

Combination No. : 0 400 876 384

Injection pump

Pump designation : PES6A95D32ORS2806 EP type number : 0 410 896 898

Governor

Governer design. : RSV375...1125AOC2178

: -8R

: 0 420 233 280 Governer no.

Cust. part No. :

Customer-spec. information Customer : VALMET Motor : 620D

: 88.0 Power KW

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x Length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

26.0 Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 2.55
Tolerance mm : + 0.05 Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm : + 1.50

: 1-5-3-6-2-Firing order

: 4

Phasing : 0-60-120-180-240

: -300 : +- 0.50 Tolerance

Check

tolerance °NW : +- 0.75

Beginning of delivery differende

Difference ° CS : 5.00

# BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.05 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 74.0

Tolerance

cm3/1000 strokes : +- 1.0

Charle to Language	I Charle tal angua
Check tolerance cm3/1000s. : +- 3.0	+ Check tolerance + cm3/1000s. : + 3.0
CIII37 10003	+ Spreed
Spreed	+ Tolerance
	+ cm3/1000 strokes : 3.5
Tolerance	+ Check tolerance
cm3/1000 strokes : 3.5	+ cm3/1000s. : 6.0
Check tolerance	Ī
cm3/1000s. : 6.0	
	+ CONTROL LEVER
	+
~	t control lever
Rated speed rpm : 375	<pre>position degree : 89.0 tolerance degree : +- 4.0</pre>
Rack travel in mm : 4.40	tolerance degree : +- 4.0
Tolerance mm : +- 0.10	RATED SPEED
Del. quantity	+ rack travel mm : 8.00
cm3/1000 strokes : 14.0	+ Rated speed rpm : 1145
Tolerance	† Tolerance 1/min : + 5
cm3/1000 strokes : + 2.0	t rack travel mm : 4.00
Check tolerance cm3/1000s. : +- 4.5	+ rack travel mm : 4.00 + Rated speed rpm : 1195
Spreed	+ Tolerance 1/min : +- 15
Tolerance	+
cm3/1000 strokes : 3.5	† rack travel mm : 0.85
Check tolerance	Tolerance mm : +- 0.55
cm3/1000s. : 5.5	Rated speed rpm : 1350
	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1200
WITH GOVERNOR	+ Tolerance 1/min : +- 15
	+
	†
GUIDE SLEEVE POSITION	I
GOIDE SEEEVE POSITION	LOW IDLE
	+
control lever	+
position degree : - 3	+ control lever
Rated speed rpm : 800	<pre>position degree : 71.0 tolerance degree : +- 4.0</pre>
Rack travel in mm : 0.50	+ Cotter drive degree 4.0
Tolerance mm : +- 0.20	Setting point w/out bumper spring
	+
governor spring	775
	+ Rated speed rpm : 375
pre-tension	rack travel mm : 4.00
	· · · · · · · · · · · · · · · · · · ·
pre-tension	rack travel mm : 4.00 Tolerance mm : +- 0.10
pre-tension	rack travel mm : 4.00 Tolerance mm : +- 0.10  Rated speed rpm : 100
pre-tension click setting x : 4.00  FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 4.00 Tolerance mm : +- 0.10
pre-tension click setting x : 4.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100	rack travel mm : 4.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50
pre-tension click setting x : 4.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100 Aneroid pressure	rack travel mm : 4.00 Tolerance mm : + 0.10  Rated speed rpm : 100
pre-tension click setting x : 4.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100 Aneroid pressure hPa : -	rack travel mm : 4.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:
pre-tension click setting x : 4.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100 Aneroid pressure hPa : - Del. quantity	rack travel mm : 4.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 375
pre-tension click setting x : 4.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 74.0	rack travel mm : 4.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:
pre-tension click setting x : 4.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100 Aneroid pressure hPa : - Del. quantity	rack travel mm : 4.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 375 rack travel mm : 4.40

Rated speed rpm : 455
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1100 rack travel mm : 9.05 Tolerance mm : + 0.05

Rated speed rpm : 500

Rated speed rpm : 980 rack travel mm : 9.35 Tolerance mm : + 0.05

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 58.5

Tolerance

cm3/1000 strokes : + 1.5

Check tolerance

cm3/1000s. :  $\div$  4.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75

Del. quantity

cm3/1000 strokes : 200.0

Tolerance

cm3/1000 strokes : +- 5.0

Check tolerance

cm3/1000s. : +- 8.0

### LOW IDLE

Rated speed rpm : 375

Rack travel in mm: 4.40 Tolerance mm: + 0.10

Del. quantity

cm3/1000 strokes : 14.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : + 4.5

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s.

5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 01.10.97 Test oil : ISO 4113

Combination No. : 0 400 876 410

Injection pump

Pump designation : PES6A95D41ORS2838 EP type number : 0 410 896 895

Governor

Governer design. : RSV450...1250A2C2263

: -6L

Governer no. : 0 420 232 589

Cust. part No. : F2NN-9A543-KA

Customer-spec. information

Customer : FNH-GEOTECH

Motor : 7.5L5 Power KW : 119.0

# TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp.  $^{\circ}$ C : 40 Tolerance  $^{\circ}$ C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.60 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300 Tolerance : + 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.80

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 95.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 8.0
Check tolerance cm3/1600s. : 8.0	
<del></del> ‡	CONTROL LEVER
Rated speed rpm : 450	control lever position degree : 109.0 tolerance degree : +- 4.0
Rack travel in mm: 5.80 + Tolerance mm: : + 0.10 + Del. quantity +	ASSEMBLY GOVERNOR SETTING
cm3/1000 strokes : 15.0	Rated speed rpm : 1293
cm3/1000 strokes : + 2.0 +	rack travel mm : 9.80
Check tolerance cm3/1000s. : + 4.5 + 5 Spreed + Tolerance +	Rated speed rpm : 1368 Tolerance 1/min : +- 7 rack travel mm : 4.00
cm3/1000 strokes : 5.5 Check tolerance	rack travel mm : 0.85
cm3/1000s. : 9.0	Tolerance mm : + 0.55 Rated speed rpm : 1475
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1294 rack travel mm : 9.80
GUIDE SLEEVE POSITION	Rated speed rpm : 1369 Tolerance 1/min : +- 7 rack travel mm : 4.00
control lever position degree : -3 Rated speed rpm : 800	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1475
Rack travel in mm : 0.50 Tolerance mm : + 0.20	Rated speed rpm : 1295 rack travel mm : 9.80
governor spring pre-tension click setting x : 5.00	Rated speed rpm : 1370 Tolerance 1/min : +- 7 rack travel mm : 4.00
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 0.85 Tolerance mm : +- 0.55
Rated speed rpm : 1250 Aneroid pressure	Rated speed rpm : 1475
hPa : 700 +	Rated speed rpm : 1296
Del. quantity + cm3/1000 strokes : 95.5 + Tolerance +	rack travel mm : 9.80
cm3/1000 strokes : + 1.0 + Check tolerance	Rated speed rpm : 1371 Tolerance 1/min : +- 7
cm3/1000s. : + 3.0 + Spreed	rack travel mm : 4.00
Tolerance cm3/1000 strokes : 3.5	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1475

Rated speed rpm : 1297 rack travel mm : 9.80	rack travel mm : 10.90 Tolerance mm : + 0.10
rack travel mm : 9.80  Rated speed rpm : 1372  Tolerance 1/min : + 7  rack travel mm : 4.00	ANEROID/ALTITUDE COMPENSATOR TEST
	T SETTING
Tolerance mm : + 0.55 Rated speed rpm : 1475	Rated speed rpm : 500 Pressure hPa : 700 rack travel mm : 10.80 Tolerance mm : + 0.10
Rated speed rpm : 1298 rack travel mm : 9.80	Rated speed rpm : 500 Pressure hPa : -
Rated speed rpm : 1373 rack travel mm : 4.00	rack travel mm : 8.30 Tolerance mm : + 0.10
rack travel mm : 0.85 Tolerance mm : + 0.55	MEASUREMENT
Tolerance mm : +- 0.55 Rated speed rpm : 1475	Rated speed rpm : 500
LOW IDLE	Pressure hPa : 310 rack travel mm : 9.00 Tolerance mm : + 0.20
control lever	Pressure hPa : 475
position degree : 80.0 tolerance degree : +- 4.0	rack travel mm : 10.20 Tolerance mm : + 0.05
tolerance degree : +- 4.0	
tolerance degree : +- 4.0  Setting point w/out bumper spring	Tolerance mm : + 0.05
tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:	FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 700 Rated speed rpm : 600
tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 450  rack travel mm : 5.80	Tolerance mm : + 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 700 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 102.0
tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. :> 19.50  Testing:  Rated speed rpm : 450  rack travel mm : 5.80  Tolerance mm : +- 0.10	Tolerance mm : + 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 700 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 102.0 Tolerance cm3/1000 strokes : + 2.0
tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 450  rack travel mm : 5.80	Tolerance mm : + 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 700 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 102.0 Tolerance
tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 450 rack travel mm : 5.80 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 540	Tolerance mm : + 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 700 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 102.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.0  Aneroid pressure
tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 450 rack travel mm : 5.80 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 540 Tolerance 1/min : + 30	Tolerance mm : + 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 700 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 102.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.0  Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity
tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. :> 19.50  Testing:  Rated speed rpm : 450 rack travel mm : 5.80 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 540 Tolerance 1/min : + 30  SET IDLE AUXILIARY SPRING  Rated speed rpm : 540 rack travel mm : 2.00	Tolerance mm : + 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 700 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 102.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.0  Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 61.5 Tolerance
tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 450 rack travel mm : 5.80 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 540 Tolerance 1/min : + 30  SET IDLE AUXILIARY SPRING  Rated speed rpm : 540  Rated speed rpm : 540	Tolerance mm : + 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 700 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 102.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.0  Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 61.5

Rated speed rpm : 600

### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 18.30 Del. quantity cm3/1000 strokes : 193.0 Tolerance cm3/1000 strokes : + 10.0 Check tolerance cm3/1000s. : + 13.0

## LOW IDLE

Rated speed rpm : 450 Rack travel in mm : 5.80 : +- 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 15.0 Tolerance 2.0 cm3/1000 strokes : +-Check tolerance cm3/1000s. 4.5 Spreed Tolerance 5.5 cm3/1000 strokes : Check tolerance cm3/1000s.9.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 01.10.97 Test oil : ISO 4113

Combination No. : 0 400 876 421

### Injection pump

Pump designation : PES6A95D32DRS2848 EP type number : 0 410 896 892

#### Governor

Governer design. : RSV500...1100A5C2269

: R

Governer no. : 0 420 233 338

Cust. part No. :

Customer—spec. information Customer : VALMET Motor : 634 DS

Power KW : 140.0

### TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet

temp.  $^{\circ}$ C : 40 Tolerance  $^{\circ}$ C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.55
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance °NW : +- 0.75

Beginning of delivery differende

and maximum rack

travel : 10.50
Tolerance mm : + 1.50
Difference ° CS : 5.00

### BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.05 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 133.0

Tolerance +	- Tolerance
cm3/1000 strokes : +- 1.0	- cm3/1000 strokes : +- 1.0
	- Check tolerance
Check tolerance +	cm3/1000s. : + 3.0
cm3/1000s. : $\leftarrow$ 3.0 $+$	- Spreed
	Tolerance
Spreed +	cm3/1000 strokes : 3.5
	Check tolerance
Tolerance 7	- cm3/1000s. : 8.0
cm3/1000 strokes : 3.5	•
Charle talanana	
Check tolerance + 8.0 +	- CONTROL LEVER
Time 10003.	CONTROL LEVER
	control lever
	position degree : 99.0
Rated speed rpm : 500	tolerance degree : + 4.0
Rack travel in mm: 4.30	RATED SPEED
Tolerance mm : +- 0.10	rack travel mm : 13.00
Del. quantity	Rated speed rpm : 1145
cm3/1000 strokes : 21.0	Tolerance 1/min : +- 5
Tolerance	
cm3/1000 strokes : + 3.0 +	rack travel mm : 4.00
Check tolerance +	Rated speed rpm : 1225
cm3/1000S. : +- 4.5	Tolerance 1/min : +- 15
Spreed	
Tolerance	rack travel mm : 0.85
cm3/1000 strokes : 5.5	Tolerance mm : +- 0.55
Check tolerance	Rated speed rpm : 1300
cm3/1000s. : 9.0	
cm5/10005. : 9.0	
+	
(B) SETTING OF INJECTION PUMP	LOU IN E
+	LOW IDLE
(B) SETTING OF INJECTION PUMP	LOW IDLE
(B) SETTING OF INJECTION PUMP	
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	control lever
(B) SETTING OF INJECTION PUMP	control lever position degree : 74.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	control lever position degree : 74.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever	control lever position degree : 74.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3	control lever position degree : 74.0 tolerance degree : +- 4.0 Setting point w/out bumper spring
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever	control lever position degree : 74.0 tolerance degree : +- 4.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 100
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50	control lever position degree : 74.0 tolerance degree : +- 4.0 Setting point w/out bumper spring
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring Rated speed rpm : 100  CRT mm min. : > 19.50
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 100
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring Rated speed rpm : 100  CRT mm min. : > 19.50  Testing: Rated speed rpm : 500
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 500 rack travel mm : 4.30
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring Rated speed rpm : 100  CRT mm min. : > 19.50  Testing: Rated speed rpm : 500
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.75	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 500 rack travel mm : 4.30 Tolerance mm : +- 0.10
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 500 rack travel mm : 4.30 Tolerance mm : +- 0.10  rack travel mm : 2.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.75  FULL LOAD DELIVERY AT FULL LOAD STOP	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 500 rack travel mm : 4.30 Tolerance mm : +- 0.10  rack travel mm : 2.00 Rated speed rpm : 530
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 500 rack travel mm : 4.30 Tolerance mm : +- 0.10  rack travel mm : 2.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100 Aneroid pressure	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 500 rack travel mm : 4.30 Tolerance mm : +- 0.10  rack travel mm : 2.00 Rated speed rpm : 530 Tolerance 1/min : +- 30
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100 Aneroid pressure hPa : -	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 500 rack travel mm : 4.30 Tolerance mm : +- 0.10  rack travel mm : 2.00 Rated speed rpm : 530
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100 Aneroid pressure	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 500 rack travel mm : 4.30 Tolerance mm : +- 0.10  rack travel mm : 2.00 Rated speed rpm : 530 Tolerance 1/min : +- 30

TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1100 : 14.05 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 700 : 14.60 : +- 0.10
Rated speed rpm rack travel mm Tolerance mm	: 975 : 14.30 : ← 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 900 : 14.30 : ← 0.10
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 13.10 : +- 0.05
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 550 : 13.20 : + 0.10
Pressure hPa rack travel mm Tolerance mm	: 655 : 13.90 : + 0.05
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa Rated speed rpm	: – : 700
Del. quantity cm3/1000 strokes	: 137.0
Tolerance cm3/1000 strokes	: + 2.0
Check tolerance cm3/1000s.	: +- 4.0

Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: : : +-	500 103.0 1.0 3.0	
STARTING FUEL DEL	IVERY		
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +-	100 20.25 0.75 205.0 7.5 10.0	
LOW IDLE			
Rated speed rpm	:	500	
Rack travel in mm Tolerance mm Del. quantity	: +-	4.30 0.10	
cm3/1000 strokes Tolerance	:	21.0	
cm3/1000 strokes Check tolerance	: +-	3.0	
cm3/1000S. Spreed	: +-	4.5	
Tolerance cm3/1000 strokes	:	5.5	
Check tolerance cm3/1000S.	•	9.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 01.10.97 : ISO 4113

Combination No. : 0 400 876 425

Injection pump

Pump designation : PES6A95D41ORS2864 EP type number : 0 410 896 888

Governor

Governer design. : RSV400...1050A2C2263

: -7L

Governer no.

: 0 420 232 606

Cust. part No. : 87 800 861

Customer-spec. information

Customer : FNH-GEOTECH

Motor

: 7.5 L

Power KW

: 149.0

### TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 8 688 901 101

Opening pressure

: 208.5

Tolerance bar

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm :

600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : +

2.60

: +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

Phasing

: 0-60-120-180-240

: -300

Tolerance Check

: +- 0.50

tolerance °NW : + 0.75

### BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.10

Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 151.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: +- 3.0

Spreed

Tolerance cm3/1000 strokes : 3.5 Check tolerance	Check tolerance : 8.0
cm3/1000s. : 8.0	CONTROL LEVER
Rated speed rpm : 650	control lever position degree : 98.0
Rack travel in mm: 4.50 Tolerance mm: + 0.10	tolerance degree : +- 4.0
Del. quantity cm3/1000 strokes : 20.0	- ASSEMBLY GOVERNOR SETTING - - Rated speed rpm : 1078
Tolerance cm3/1000 strokes : + 2.0	- Rated speed rpm : 1078 - rack travel mm : 11.70
Check tolerance cm3/1000s. : +- 4.5 Spreed Tolerance	Rated speed rpm : 1105 Tolerance 1/min : + 5 rack travel mm : 4.00
cm3/1000 strokes : 5.5 Check tolerance cm3/1000s. : 9.0	- - rack travel mm : 0.85 - Tolerance mm : +- 0.55
	- Rated speed rpm : 1250
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1079 rack travel mm : 11.70
GUIDE SLEEVE POSITION	Rated speed rpm : 1106 Tolerance 1/min : + 5 rack travel mm : 4.00
control lever position degree : - 3 Rated speed rpm : 800	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1250
Rack travel in mm: 0.50 Tolerance mm: + 0.20	- Rated speed rpm : 1080 - rack travel mm : 11.70
governor spring pre-tension click setting x : 2.50	Rated speed rpm : 1107 Tolerance 1/min : +- 5 rack travel mm : 4.00
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 0.85 Tolerance mm : +- 0.55
Rated speed rpm : 800 Aneroid pressure	- Rated speed rpm : 1250
hPa : 1200 + Del. quantity	Rated speed rpm : 1081
cm3/1000 strokes : 151.0	rack travel mm : 11.70
cm3/1000 strokes : + 1.0	Rated speed rpm : 1108 Tolerance 1/min : + 5 rack travel mm : 4.00
Spreed Tolerance	rack travel mm : 4.00
cm3/1000 strokes : 3.5	Tolerance mm : +- 0.55 Rated speed rpm : 1250

	+ rack travel mm : 11.90 + Tolerance mm : +- 0.05
Rated speed rpm : 1082 rack travel mm : 11.70	Rated speed rpm : 1030
Rated speed rpm : 1109 Tolerance 1/min : +- 5	rack travel mm : 12.70 Tolerance mm : + 0.10
rack travel mm : 4.00	Rated speed rpm : 950 rack travel mm : 13.35
rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1250	Tolerance mm : + 0.10
	ANEROID/ALTITUDE COMPENSATOR TEST
Rated speed rpm : 1083 rack travel mm : 11.70	SETTING
Rated speed rpm : 1110 Tolerance 1/min : + 5 rack travel mm : 4.00	Rated speed rpm : 500 Pressure hPa : 1200 rack travel mm : 14.15 Tolerance mm : + 0.10
rack travel mm : 0.85 Tolerance mm : + 0.55	<del></del>
Rated speed rpm : 1250	Rated speed rpm : 500 - Pressure hPa : - rack travel mm : 7.80
LOW IDLE	Tolerance mm : + 0.05
control lever	+ MEASUREMENT
position degree : 78.0 tolerance degree : + 4.0	Rated speed rpm : 500
Setting point w/out bumper spring	Pressure hPa : 775 rack travel mm : 13.50 Tolerance mm : + 0.05
Rated speed rpm : 650 rack travel mm : 4.00 Tolerance mm : +- 0.10	Pressure hPa : 520 rack travel mm : 11.10
Testing:	Tolerance mm : +- 0.20
Rated speed rpm : 650 rack travel mm : 4.50 Tolerance mm : +- 0.10	FUEL DELIVERY CHARACTERISTICS
rack travel mm : 2.00 Rated speed rpm : 740	Aneroid pressure hPa : -
Tolerance 1/min : +- 30	Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 70.5
TORQUE CONTROL Rated speed rpm : 800	+ cm3/1000 strokes : 70.3 + Tolerance + cm3/1000 strokes : +- 1.0
rack travel mm : 14.10 Tolerance mm : + 0.10	Check tolerance cm3/1000s. : +- 3.0
Rated speed rpm : 500 rack travel mm : 14.15 Tolerance mm : + 0.10	STARTING FUEL DELIVERY
Rated speed rpm : 1030	Rated speed rpm : 100
varen sheen thii . 1000	, racea speed i piii . Too

rack travel mm	:		20.00
Total arice mm	:	+-	0.20
Del. quantity cm3/1000 strokes	:		160.0
Tolerance			
cm3/1000 strokes	:	+-	8.0
Check tolerance cm3/1000s.	:	+	11.0

# LOW IDLE

Rated speed rpm	:		650	
Rack travel in mm Tolerance mm Del. quantity	-	+	4.50 0.10	
cm3/1000 strokes	:		20.0	
cm3/1000 strokes	:	+-	2.0	
Check tolerance cm3/1000S. Spreed	:	+	4.5	
Tolerance cm3/1000 strokes	:		5.5	
Check tolerance cm3/1000s.	:		9.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 01.10.97 Edition Test oil : ISO 4113

Combination No. : 0 400 876 430

Injection pump

Pump designation : PES6A95D41ORS2864 EP type number : 0 410 896 888

Governor

Governer design. : RSV400...1050A0C2263

: -10L

: 0 420 232 619 Governer no.

Cust. part No. : 87 800 862

Customer-spec. information

Customer : FNH-GEOTECH

Motor : P 396 : 142.0 Power KW

### TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 2.60 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance °NW : +- 0.75

#### BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 15.20 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 154.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 3.0	+ Check tolerance + cm3/1000s. : +- 3.0 + Spreed
Spreed	+ Tolerance + cm3/1000 strokes : 3.5
Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 8.0
Check tolerance cm3/1000s. : 8.0	+
	CONTROL LEVER
	t control lever
Rated speed rpm : 450	<pre>position degree : 97.0 tolerance degree : + 4.0</pre>
Rack travel in mm : 5.60	+
Tolerance mm : +- 0.10 Del. quantity	+ ASSEMBLY GOVERNOR SETTING
cm3/1000 strokes : 15.0 Tolerance	+ Rated speed rpm : 1093
cm3/1000 strokes : +- 2.0	rack travel mm : 12.40
Check tolerance cm3/1000s. : +- 4.5	+ Rated speed rpm : 1158
Spreed	+ Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : 5.5	+ rack travel mm : 4.00
Check tolerance cm3/1000s. : 9.0	+ rack travel mm : 0.85 + Tolerance mm : + 0.55
CIID/ 10003 9.0	Rated speed rpm : 1270
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1094 rack travel mm : 12.40
GUIDE SLEEVE POSITION	+ Rated speed rpm : 1159 + Tolerance 1/min : +- 5 + rack travel mm : 4.00
control lever position degree : - 3 Rated speed rpm : 800	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1270
Rack travel in mm : 0.50 Tolerance mm : + 0.20 governor spring	Rated speed rpm : 1095 rack travel mm : 12.40
pre-tension	Rated speed rpm : 1160
click setting x : 4.00	Tolerance 1/min : +- 5 rack travel mm : 4.00
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 0.85 Tolerance mm : +- 0.55
Rated speed rpm : 750 Aneroid pressure	Rated speed rpm : 1270
hPa : 1200	+
Del. quantity cm3/1000 strokes : 154.0	Rated speed rpm : 1096 rack travel mm : 12.40
Tolerance cm3/1000 strokes : +- 1.0	+ Rated speed rpm : 1161 + Tolerance 1/min : +- 5

made Anaval ma	+ Rated speed rpm : 500
rack travel mm : 4.00	+ Rated speed rpm : 500 + rack travel mm : 15.25
rack travei mm : 0.85	+ Tolerance mm : + 0.10
Tolerance mm : + 0.55	+
Rated speed rpm : 1270	+ Rated speed rpm : 1050
	rack travel mm : 12.90 Tolerance mm : + 0.05
Rated speed rpm : 1097	Toterance mm : + 0.03
rack travel mm : 12.40	Rated speed rpm : 1050
	rack travel mm : 13.40
Rated speed rpm : 1162	† Tolerance mm : + 0.10
Tolerance 1/min : + 5	† 5 had award awar 050
rack travel mm : 4.00	Rated speed rpm : 950 rack travel mm : 14.25
rack travel mm : 0.85	Tolerance mm : + 0.10
Tolerance mm : + 0.55	1
Rated speed rpm : 1270	
	+ ANEROID/ALTITUDE
0.1.1	+ COMPENSATOR TEST
Rated speed rpm : 1098 rack travel mm : 12.40	Ī
THE CHAVEC HAIF . TE. TO	SETTING
Rated speed rpm : 1163	+
Tolerance 1/min : + 5	Rated speed rpm : 500
rack travel mm : 4.00	Pressure hPa : 1200
nost to 2011 00 00 00 00 00 00 00 00 00 00 00 00	rack travel mm : 15.25
rack travel mm : 0.85 Tolerance mm : + 0.55	+ Tolerance mm : +- 0.10
Rated speed rpm : 1270	Rated speed rpm : 500
Tradea opeoa vp.m	+ Pressure hPa : -
	rack travel mm : 9.20
LOW IDLE	Tolerance mm : + 0.05
	+ MEASUREMENT
control lever	THEASORCITEIVI
position degree : 75.0	+ Rated speed rpm : 500
tolerance degree : + 4.0	+
	+ Pressure hPa : 750
Setting point w/out bumper spring	rack travel mm : 13.70 Tolerance mm : +- 0.05
Rated speed rpm : 450	Toterance min : += 0.03
	+ Pressure hPa : 500
rack travel mm : 5.10 Tolerance mm : + 0.10	rack travel mm : 11.80
	+ Tolerance mm : +- 0.20
Testing:	†
Rated speed rpm : 450	I
	↓ FUEL DELIVERY CHARACTERISTICS
rack travel mm : 5.60 Tolerance mm : +- 0.10	+
0.00	
rack travel mm : 2.00	Aneroid pressure
Rated speed rpm : 575 Tolerance 1/min : +- 30	+ hPa : - + Rated speed rpm : 500
roterance minimi. • 50	Del. quantity
	- cm3/1000 strokes : 76.5
TORQUE CONTROL	+ Tolerance
Rated speed rpm : 750	- cm3/1000 strokes : + 1.0
rack travel mm : 15.20	+ Check tolerance + cm3/1000s. :+- 3.0
Tolerance mm : +- 0.05	I (11137 10003

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 Tolerance mm : + 0.20

Del. quantity cm3/1000 strokes : 163.0

Tolerance

cm3/1000 strokes : +- 8.0

Check tolerance

cm3/1000s. : + 11.0

### LOW IDLE

Rated speed rpm : 450

Rack travel in mm : 5.60 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 15.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed

Tolerance cm3/1000 strokes : 5.5

Check tolerance

cm3/1000s. : 9.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 25.09.97 Edition Test oil : ISO 4113

Combination No. : 0 402 066 713

Injection pump

Pump designation : PES6P110A120RS3357 EP type number : 0 412 016 754

Governor

Governer design. : RSV550...1100P2A677

Governer no. : 0 421 833 596

Cust. part No. : 3931957

Customer-spec. information

Customer : CDC

: 6CTA ELITE Motor 208.0 Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar :  $\leftarrow$  0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 bar Tolerance bar

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.30

Check

tolerance °NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50

Tolerance : +- 0.50 Check

: +- 0.75 tolerance °NW

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.00

N19

Tolerance mm : +- 0.05	- Rated speed rpm : 1100 - Aneroid pressure
Del. quantity cm3/100 strokes : 195.5	- hPa : 1500
	- Del. quantity - cm3/1000 strokes : 195.5
Tolerance cm3/1000 strokes : +- 1.0	Tolerance cm3/1000 strokes : +- 1.0
Check tolerance	- Check tolerance - cm3/1000s. : +- 3.0
cm3/1000s. : + 3.0	- Spreed - Tolerance
Spreed	- cm3/1000 strokes : 4.0 - Check tolerance
Tolerance cm3/1000 strokes : 4.0	- cm3/1000s. : 7.5 -
Check tolerance cm3/1000s. : 7.5	- CONTROL LEVER
	- control lever - position degree : 99.0
Rated speed rpm : 550	tolerance degree : +- 4.0
Rack travel in mm: 6.40 Tolerance mm: + 0.20	- RATED SPEED - rack travel mm : 12.00
Del. quantity cm3/1000 strokes : 29.5	Rated speed rpm : 1195 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : +- 2.0	rack travel mm : 4.00
Check tolerance cm3/1000s. : + 4.5	Rated speed rpm : 1285 Tolerance 1/min : +- 5
Spreed Tolerance	· rack travel mm : 0.85
cm3/1000 strokes : 6.0 + Check tolerance	Tolerance mm : + 0.55 Rated speed rpm : 1460
cm3/1000s. : 9.0	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1320 Tolerance 1/min : +- 15
WITH GOVERNOR	•
GUIDE SLEEVE POSITION	LOW IDLE
<u> </u>	
control lever position degree : -3	control lever position degree : 79.0
Rated speed rpm : 800	tolerance degree : +- 4.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Control lever difference Grad : 20.0 tolerance degree : +- 6.0
governor spring pre-tension	Setting point w/out bumper spring
click setting x : 2.50	Rated speed rpm : 550
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 5.90 Tolerance mm : +- 0.10
+	

	400	
Rated speed rpm	: 100	+ Aneroid pressure + hPa : 1500
CRT mm min.	: < 19.00	Rated speed rpm : 950
Testing:		+ Del. quantity + cm3/1000 strokes : 212.0
restring.		+ Tolerance
Rated speed rpm		+ cm3/1000 strokes : + 2.0 + Check tolerance
rack travel mm Tolerance mm	: +- 0.20	- cm3/1000s. : +- 5.0
		†
TORQUE CONTROL		Aneroid pressure
Rated speed rpm		+ hPa : -
rack travel mm Tolerance mm		+ Rated speed rpm : 600 + Del. quantity
		+ cm3/1000 strokes : 154.5
Rated speed rpm rack travel mm	: 750 · 13 50	+ Tolerance + cm3/1000 strokes : +- 1.0
rack travel mm Tolerance mm	: + 0.20	+ Check tolerance
		- cm3/1000s. : +- 3.0
Rated speed rpm rack travel mm	: 13.10	Ī
Tolerance mm	: +- 0.20	
Rated speed rpm	• 950	STARTING FUEL DELIVERY
rack travel mm	: 13.50	Rated speed rpm : 100
Tolerance mm	: + 0.10	+ rack travel mm : 21.00 + Tolerance mm : + 0.50
		+ Tolerance mm : +- 0.50 + Del. quantity
ANEROID/ALTITUDE		+ cm3/1000 strokes : 165.0
COMPENSATOR TEST		+ Tolerance + cm3/1000 strokes : +- 20.0
		+ Check tolerance
SETTING		+ cm3/1000s. : +- 25.0
Rated speed rpm	: 600	<del>1</del>
Pressure hPa	: 1500	†
Rated speed rpm	: 600	LOW IDLE
Pressure hPa	; -	Rated speed rpm : 550
rack travel mm Tolerance mm	: 11.50 : + 0.20	Rated speed rpm : 550
		Rack travel in mm: 6.40
MEASUREMENT		+ Tolerance mm : +- 0.20 + Del. quantity
Rated speed rpm	: 600	+ cm3/1000 strokes : 29.5
Programs has	: 1150	+ Tolerance + cm3/1000 strokes : +- 2.0
Pressure hPa rack travel mm	: 12.95	+ Check tolerance
Tolerance mm	: +- 0.20	- cm3/1000s. : +- 4.5
Pressure hPa	: 975	+ Spreed + Tolerance
rack travel mm	: 12.15	+ cm3/1000 strokes : 6.0
Tolerance mm	: +- 0.20	+ Check tolerance + cm3/1000s. : 9.0
		T (1115) 10003
		<del></del> +

FUEL DELIVERY CHARACTERISTICS

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 08.10.97 Test oil : ISO 4113

Combination No. : 0 402 076 817

Injection pump

Pump designation : PES6P120A720RS3367

EP type number : 0 412 026 788

Governor

Governer design. : RSV525...1000P2A640

Governer no. : 0 421 833 604

Cust. part No. : RE71286

Customer-spec. information
Customer : DEERE
Motor : 6081HT001
Power KW : 186.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

 $^{\circ}$ NW after s.o.d. : 7.50 Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 14.00° Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1000

. 1000

+	
Rack travel in mm: 12.90 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 174.0	Rated speed rpm : 1000 Aneroid pressure hPa : 1400
Tolerance cm3/1000 strokes : +- 1.0	Del. quantity cm3/1000 strokes : 174.0 Tolerance
Check tolerance cm3/1000s. : + 3.0	cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 3.0
Spreed	Spreed
Tolerance cm3/1000 strokes : 4.0	Tolerance cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. : 6.5
Check tolerance cm3/1000s. : 6.5	
	CONTROL LEVER
Rated speed rpm : 525	control lever position degree : 89.0
Rack travel in mm: 5.00 + Tolerance mm: + 0.10	tolerance degree : +- 4.0
Del. quantity cm3/1000 strokes : 26.0 Tolerance	RATED SPEED rack travel mm : 11.80 Rated speed rpm : 1070
cm3/1000 strokes : +- 2.0 + Check tolerance +	Tolerance 1/min : +- 5
cm3/1000s. : + 4.5 Spreed Tolerance	rack travel mm : 4.00 Rated speed rpm : 1115 Tolerance 1/min : +- 5
cm3/1000 strokes : 6.0 + Check tolerance cm3/1000s. : 8.0 + Check tolerance cm3/1000s.	rack travel mm : 0.85 Tolerance mm : +- 0.55
‡	Rated speed rpm : 1200
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1115 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	
1	LOW IDLE
control lever	25.11 25.22
position degree : -3 Rated speed rpm : 800	control lever position degree : 72.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	tolerance degree : + 4.0
governor spring +	Setting point w/out bumper spring
pre-tension click setting x : 3.00	Rated speed rpm : 525 rack travel mm : 4.50 Tolerance mm : +- 0.10

Rated speed rpm : 100	+ Check tolerance + cm3/1000s. : +- 4.0
CRT mm min. :> 19.00	T Cm3/10005. : +- 4.0
Testing:	Aneroid pressure
Rated speed rpm : 525	+ hPa : - + Rated speed rpm : 500
rack travel mm : 5.00 Tolerance mm : + 0.10	+ Del. quantity + cm3/1000 strokes : 168.0
	+ Tolerance + cm3/1000 strokes : +- 2.0
TORQUE CONTROL Rated speed rpm : 1000	Check tolerance cm3/1000s. : +- 4.0
rack travel mm : 12.90	1.0
Tolerance mm : + 0.05	†
Rated speed rpm : 700	STARTING FUEL DELIVERY
rack travel mm : 13.60	100
Tolerance mm : +- 0.10	+ Rated speed rpm : 100 + rack travel mm : 20.50
	+ Tolerance mm : + 0.50
ANEROID/ALTITUDE	+ Del. quantity
COMPENSATOR TEST	- cm3/1000 strokes : 105.0
	+ Tolerance
	+ cm3/1000 strokes : + 20.0
SETTING	+ Check tolerance
Rated speed rpm : 500	+ cm3/1000s. : +- 25.0
Rated speed rpm : 500 Pressure hPa : 1400	Ī
The source that the second sec	+
Rated speed rpm : 500	
Pressure hPa : -	+ LOW IDLE
rack travel mm : 12.25	525
Tolerance mm : + 0.10	+ Rated speed rpm : 525
MEASUREMENT	Rack travel in mm : 5.00
	+ Tolerance mm : +- 0.10
Rated speed rpm : 500	+ Del. quantity
	+ cm3/1000 strokes : 26.0
Pressure hPa : 975	+ Tolerance
rack travel mm : 13.30 Tolerance mm : + 0.20	cm3/1000 strokes : +- 2.0 Check tolerance
Tolerance mm : +- 0.20	- cm3/1000s. : +- 4.5
Pressure hPa : 830	+ Spreed
rack travel mm : 12.60	+ Tolerance
rack travel mm : 12.60 Tolerance mm : +- 0.05	+ cm3/1000 strokes : 6.0
	cm3/1000 strokes : 6.0 Check tolerance
	+ cm3/1000 strokes : 6.0
Tolerance mm : +- 0.05	cm3/1000 strokes : 6.0 Check tolerance
	cm3/1000 strokes : 6.0 Check tolerance
Tolerance mm : +- 0.05	cm3/1000 strokes : 6.0 Check tolerance
Tolerance mm : +- 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure	cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 8.0
Tolerance mm : +- 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 1400	cm3/1000 strokes : 6.0 Check tolerance
Tolerance mm : +- 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 1400 Rated speed rpm : 700	cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 8.0
Tolerance mm : +- 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 1400 Rated speed rpm : 700 Del. quantity	cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 8.0
Tolerance mm : +- 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 1400 Rated speed rpm : 700 Del. quantity cm3/1000 strokes : 193.5	cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 8.0
Tolerance mm : +- 0.05  FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : 1400 Rated speed rpm : 700 Del. quantity	cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 8.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 08.10.97 : ISO 4113

Combination No. : 0 402 776 823

Injection pump

Pump designation : PES6P12OA72ORS7382

EP type number : 0 412 726 943

Governor

Governer design. : RSV400...900P4A609

Governer no. : 0 421 833 494

Cust. part No. : RE64162

Customer-spec. information

Customer : DEERE

Motor

: 6081 AF001

Power KW

: 180.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C

40

Tolerance °C

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar

: + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : x length mm : 600

3.0

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0

Tolerance bar : + 1.0

: 3.60 : ← 0.05 Prestroke mm

Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firina order

: 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

\*NW after s.o.d. : 7.00

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

14.00 travel

Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 850

,	Annaid mana
Rack travel in mm: 12.85 Tolerance mm: + 0.05	- Aneroid pressure - hPa : - Del. quantity - cm3/1000 strokes : - Tolerance
Del. quantity cm3/1000 strokes : 225.0	- cm3/1000 strokes : - Check tolerance - cm3/1000s. :
Tolerance cm3/1000 strokes : + 1.0	- Spreed - Tolerance - cm3/1000 strokes :
Check tolerance cm3/1000s. : +- 4.0	Check tolerance cm3/1000s.
Spreed	• -
Tolerance cm3/1000 strokes : 5.0	- CONTROL LEVER
Check tolerance cm3/1000s. : 9.0	- control lever - position degree : - tolerance degree :
Rated speed rpm : 400	- - RATED SPEED - rack travel mm : - Rated speed rpm :
Rack travel in mm: 5.50  Tolerance mm: + 0.10  Del. quantity cm3/1000 strokes: 20.0  Tolerance	Tolerance 1/min : - rack travel mm : - Rated speed rpm : - Tolerance 1/min :
cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 5.0 Spreed	rack travel mm : Tolerance mm : Rated speed rpm :
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0	rack travel mm : Rated speed rpm : Tolerance 1/min :
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	LOW IDLE
GUIDE SLEEVE POSITION	control lever position degree : tolerance degree :
control lever	Setting point w/out
position degree : -3  governor spring  pre-tension  click setting x : 5.00	Rated speed rpm : rack travel mm : Tolerance mm :
CLICK SETTING X : 5.00	Rated speed rpm :
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. :
†	

+++++++++++	Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 225.0 : ← 1.0 : ← 4.0 : 5.0 : 9.0
†	CONTROL LEVER	
+	control lever position degree tolerance degree	: 103.0 : +- 4.0
++++	RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 11.85 : 920 : + 5
T + + +	rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 955 : + 5
+	rack travel mm Tolerance mm Rated speed rpm	: 0.85 : +- 0.55 : 1025
+++++++++++++++++++++++++++++++++++++++	rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 970 : +- 15
Ī		
+	LOW IDLE	
+ + + +	control lever position degree tolerance degree	
Ī	Setting point w/ou	t bumper spring
+++++++++++++++++++++++++++++++++++++++	Rated speed rpm rack travel mm Tolerance mm	: 400 : 5.00 : +- 0.10
+	Rated speed rpm	: 100
‡		: > 19.00
+	Testing:	

Rated speed rpm : 850

Rated speed rpm : 400 rack travel mm : 5.50 Tolerance mm : +-0.10

TORQUE CONTROL

Rated speed rpm : 850 rack travel mm : 12.85 Tolerance mm :  $\div$  0.05

Start interlock

Rated speed rpm : > 100

Check

speed 1/min : > 80

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 105.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

cm3/1000s. : +- 25.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm: 5.50
Tolerance mm: + 0.10
Del. quantity
cm3/1000 strokes: 20.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s. :  $\leftarrow$  5.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0